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THE JOURNAL OF

OPHTHALMOLOGY

OTOLOGY & LARYNGOLOGY.

VOLUME I., 1889.

GEO. S. NORTON, M.D., EDITOR.
CHAS. DEADY, M.D., ASSISTANT EDITOR.



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EDITOR,
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INTRODUCTION.

Twenty years ago no man could have been found so bold as to predict that the sciences of ophthalmology, otology, and laryngology would, in the coming years, produce results so important, or be marked by discoveries so brilliant, as those which had characterized the preceding two decades. But a review, at the present day, of the progress made in these departments, demonstrates that men, aroused by the enthusiasm of Von Graefe and his co-workers, took up the work and pressed forward in their investigations until results as momentous as any ever attained in the past, rewarded them for their labors and crowned their efforts with well-merited success. In fact, it may be truly said that no other branches in the science of medicine have been studied with more fervent zeal nor have reaped richer laurels than have these. To keep pace with these rapid advances, record the progress, and carry the information to the interested physician, special mediums of communication have been found necessary. The general medical journals have now become so numerous that it requires too great an expenditure of time and money to find the few articles of value to the specialist which occasionally appear. Also the scope of the general periodical is, and should be, distinct from the special. That which is of interest to the specialist will be of little benefit to the general practitioner, and *vice versa*. The physician who treats hundreds of cases of iritis does not need to be told that atropine should always be employed in this form of inflammation, though this advice

may prove of incalculable value to the physician in busy practice who only rarely meets with a case of iritis. The progressive specialist has not sufficient time to thoroughly cover the field of medicine, but is compelled to confine his reading within certain limits, in order that he may go deeper into the subjects in which he is particularly interested. He desires to become familiar with the latest researches into the anatomy, physiology, and pathology of his subject; the rare forms in which disease shows itself; and above all with the most recent surgical and medical measures recommended to combat its various manifestations. Much of this material is not adapted to a general medical journal, and is therefore lost, for the specialist can not afford the time to prepare an exhaustive paper for burial in transactions or in a medical periodical, never to be seen by those who can understand its contents. To preserve this knowledge and disseminate it among those who can appreciate its importance, is the sphere of the special journal.

One now naturally inquires, Are there not already too many journals devoted to the eye, ear, and throat? We do not deny that there are many, perhaps too many, but among the whole number there is not one in which an article treating upon homœopathic therapeutics can be admitted. Homœopathy has passed through her rudimentary stage; her collegiate course of instruction is fully as rigid as that found in any medical college; her physicians are fully as scientific and well educated as those in any school of medicine; and her specialists in the eye, ear, and throat are not only to be found in every large city throughout this and foreign lands, but they have proven by extensive experience their ability to correctly diagnosticate and successfully treat the various diseased conditions of these special organs. It is to supply a place for the collection and preservation of the vast experience of these and other liberal-minded men, and to provide a means of communication through which the whole medical world interested in these departments of medicine may obtain this information, that this journal is founded. The editors, though

earnestly believing in the law of similars as a law of cure, most fully recognize the fact that affections of these special organs are more often only amenable to surgical or mechanical interference than to medicinal measures. The columns of this journal will, therefore, not be circumscribed by the limits of any particular creed, but will be open to scientific investigators of any school of medicine who may desire to contribute to its pages. The only restriction imposed will be, that the paper shall be of practical or theoretical value upon the special topics, and that the author shall hold himself responsible for all his utterances.

Although it hardly seems possible that the future can yield as brilliant results as have distinguished the past, yet the field is still large and full of promise. Mystery surrounds many physiological questions pertaining to sight, hearing, and vocalization; while the darkness which envelopes many morbid conditions still needs the piercing light of earnest investigation, extended research, and united experience to dispel the gloom. Our therapeutic measures are also inadequate to cope with the varying manifestations of disease, and nothing adds more to advancement in this direction, independent of increased knowledge of the cause and nature of disease, than a comparison of individual experiences. It is, therefore, urged upon all interested in these special departments to keep careful records of their cases, and to report not only the variations of disease but the results of treatment, whether they be failures or successes, as more can often be learned from the most disastrous failure than from the most brilliant success.

The editors realize the vastness of the work they have undertaken, but nevertheless enter upon it with enthusiasm, and, encouraged by the liberal support promised by prominent specialists throughout the country, are determined to carry the work to a successful accomplishment. It is proposed to fill the pages of this journal chiefly with *original articles*. No communication will be admitted that is not considered of scientific value or of practical usefulness to the busy specialist. Particular attention will be given to the

obtaining of short, pithy, practical papers from leading men in these departments, papers which will give their own experience in the treatment of severe and rare forms of disease. A further most valuable aid will be derived from the clinics of the New York Ophthalmic Hospital. For over twenty years an immense amount of material in clinical experience has been here accumulating ; during the past three years nearly twelve thousand new patients having been treated each year. All records of these cases will be utilized in extending our knowledge of the various phases of morbid conditions, their ætiology, course, and termination. And from the study of these records we hope to draw conclusions which will be of practical value in the treatment of the many affections of these special organs. Abstracts will occasionally be made of articles of particular importance in diagnosis, pathology, or therapeutics, which may from time to time appear in American or foreign periodicals, but no attempt will be made to give a résumé of the progress of ophthalmology, otology, or laryngology as is already so completely done in the "*Archives of Ophthalmology*." New books and monographs upon special subjects will receive fair and conscientious reviews ; criticism being as freely rendered as praise when merited.

A REPORT OF ONE HUNDRED AND TWENTY
CASES OF CATARACT EXTRACTION.

BY CHAS. M. THOMAS, M.D., PHILADELPHIA.

The following report includes all the operations for ex-
traction of cataract done by the writer from June, 1875, to
June, 1888.

In this are not included traumatic cases, or those soft
cataracts removed by discission or the broad needle.

Of the one hundred and twenty cases, thirty-seven were
done by the linear sclerotic incision of Graefe, eighty-two
by the upward low flap in the corneal margin (DeWecker),
and one by the Liebreich incision.

A preliminary iridectomy was done in fifty cases, and a
peripheric opening of the capsule (Knapp) in every case
after the fifty-eighth.

The visual results obtained, following the standard
adopted by Dr. Knapp, show :

Successes, 92 ; partial successes, 19 ; failures, 9.

No. of Cases.	Ultimate Vision.	No. of Cases.	Ultimate Vision.	No. of Cases.	Ultimate Vision.
7	20	9	20	1	8
14	20	10	100	3	200
22	20	4	20	3	5
13	30	1	200	9	200
17	20	7	15		2
	40		200		0
	20		12		
	50		200		
	20		10		
	70		200		

No.	Age.	Health.	Quality of Cataract. Condition of Eye.	Operation and Complication.	Course of Healing.	Anæsthetic.	Vision. Primary and Ultimate
1	50	Good.	Over ripe, T — 2. Projection bad.	Graefe linear.	Good.	Chloroform.	$\frac{2}{200}$.
2	45 Col.	Good.	Hard, ripe. Normal.	Graefe linear.	Plastic. iritis and capsulitis.	Chloroform.	Fingers 3 ft. Dis- cission in 4 wks. $V = \frac{20}{70}$.
3	70	Feeble.	Over ripe. Normal.	Graefe linear. Vitreous in advance of lens. Extraction with spoon.	Slough of cornea. Panophthalmitis.	Chloroform.	0.
4	55	Good.	Hard, ripe. Normal.	Graefe linear. Hemorrhage from iris, masking cystotome.	Iritis.	None.	$\frac{20}{200}$. Capsular opa- city. Not need- led.
5	79	Feeble.	Hard, ripe. Normal.	Graefe linear.	Normal.	None.	$\frac{20}{200}$.
6	74	Good.	Hard, ripe. Normal.	Graefe linear. Section too small. Enlarged with scissors.	Iritis.	Ether.	$\frac{20}{200}$.
7	74	Feeble.	Hard, ripe. Normal.	Graefe linear. Cortex left.	Capsulitis. Iritis.	Ether.	$\frac{10}{200}$.
8	69	Good.	Hard, ripe. Normal.	Graefe linear. Vitreous followed lens.	Irido-cyclitis. Atrophy of ball.	None.	0.
9	80	Feeble.	Hard, ripe. Normal.	Graefe linear. Cortex left.	Capsulitis.	None.	$\frac{5}{200}$. Dissection in 2 months. $V = \frac{20}{100}$.
10	47	Good.	Hard, not ripe. Normal.	Graefe linear. Cortex left.	Capsulitis. Iritis.	Ether.	Fingers at 3 ft. Dissection in 2 months. $V = \frac{20}{200}$.
11	50	Good.	Hard, ripe. Normal.	Graefe linear.	Normal.	Ether.	$\frac{20}{70}$.
12	66	Good.	Hard, ripe. Normal.	Graefe linear. Section too small and de- livery difficult.	Irido-capsulitis.	Ether.	$\frac{20}{200}$.

13	68	Good.	Hard, ripe. Myopia of high grade.	Graefe linear. Profuse bleeding from iris. Cystotome used several times.	Irido-capsulitis, lasting several weeks.	None.	Quantitative light perception. Dis- cission 3 months later. $V=\frac{1}{200}$.
14	78	Good.	Hard, ripe. Normal.	Graefe linear. Knife introduced reversed, withdrawn and re-enter- ed, losing aqueous. Iris fell in front of knife and was cut. Iridectomy scant.	Plastic iritis. Dense pupillary mem- brane.	None.	Quantitative light perception. Dis- cission, 2 months. $V=\frac{1}{200}$.
15	75	Good.	Hard, ripe. Normal.	Graefe linear.	Normal.	None.	$\frac{2}{100}$.
16	51	Good.	Hard, ripe. Normal.	Graefe linear. Free bleeding from cut iris.	Normal.	None.	$\frac{2}{70}$.
17	62	Good.	Hard, ripe.	Graefe linear. Capsule tough, lens lux- ated and removed with loop.	Capsulitis.	None.	$\frac{5}{200}$.
18	78	Feeble.	Hard, ripe. Normal.	Graefe linear. Sudden frenzy of patient, with squeezing of lids and loss of large amount of vitreous with delivery of lens.	General suppuration of globe.	None.	0.
19	72	Chronic Bronchitis.	Hard, ripe. Normal.	Graefe linear. Violent fit of coughing with protrusion of vitre- ous in advance of lens.	Irido-cyclitis. Occlusion of pupil.	None.	0.
20	38	Good.	Hard nucleus. Fluid cortex.	Graefe linear.	Normal.	Ether.	$\frac{2}{40}$.
21	63	Good.	Hard, ripe. Normal.	Graefe linear.	Iritis.	None.	$\frac{2}{70}$.
22	67	Good.	Hard, ripe. Normal.	Graefe linear.	Normal.	Ether.	$\frac{2}{100}$.

No.	Age.	Health.	Quality of Cataract. Condition of Eye.	Operation and Complication.	Course of Healing.	Anæsthetic.	Vision. Primary and Ultimate
23	44	Good.	Hard, ripe. Normal.	Graefe linear. Section too small. Iris bruised. Cortex left.	Irido-capsulitis.	Ether.	$\frac{10}{200}$.
24	67	Good.	Hard, ripe. Normal.	Graefe linear.	Facial erysipelas. Suppuration of cornea. Normal.	Ether.	0.
25	51	Good.	Hard, ripe. Normal.	Graefe linear.		None.	$\frac{20}{100}$.
26	63	Good.	Hard, ripe. Normal.	Graefe linear.		None.	$\frac{20}{60}$.
27	70	Good.	Hard, ripe. Normal.	Graefe linear. Knife entered reversed and turned in wound. Sec- tion too small, delivery difficult.	Suppuration of angle of wound. Irido-capsulitis.	None.	$\frac{2}{200}$.
28	68	Good.	Hard, ripe. Normal.	Graefe linear.		None.	$\frac{8}{200}$.
29	54	Good.	Hard, ripe. Normal.	Graefe linear. Cortex left.		None.	$\frac{5}{200}$.
30	73	Feeble. Gouty.	Hard, over ripe. Projection poor.	Profuse hemorrhage from iris.	Capsulitis. Tender ball for three months. (Cyclitis.)	Ether.	$\frac{15}{200}$. Needling followed by cyc- litis. V= $\frac{6}{200}$.
31	72	Good.	Hard, not ripe. Normal.	Much rubbing of cornea in removing cortex. Some cortex left.	Plastic iritis and clo- sure of pupil.	None.	Quantitative light perception. Iri- dectomy. V= $\frac{2}{200}$.
32	39	Good.	Partly soft, ripe. Normal.	Graefe linear.		None.	$\frac{20}{40}$.
33	80	Feeble.	Over ripe. Projection uncertain.	Graefe linear. Bead of vitreous on com- pletion of section.	Slow closure of wound, leaving hazy cornea two months later.	None.	$\frac{15}{200}$.

34	45	Good..	Hard, ripe. Normal.	Low corneal flap.	Normal.	Ether.	$\frac{20}{80}$.
35	55	Good.	Hard, ripe. Normal.	Graefe linear.	Normal.	None.	$\frac{20}{80}$.
36	60	Good.	Hard, ripe. Normal.	Graefe linear.	Ring abscess. Purulent irido-cyclitis.	None.	0.
37	64	Good.	Hard, ripe. Normal.	Low flap in corneal margin.	Capsulitis.	None.	$\frac{5}{200}$ Discission in 2 months. V— $\frac{20}{70}$.
38	71	Good.	Hard, ripe. Normal.	Low flap. Cortex left.	Iritis.	None.	$\frac{20}{200}$.
39	73	Good.	Hard, ripe. Normal.	Graefe linear. Section too small. Cortex left.	Capsulo-iritis.	None.	$\frac{12}{200}$.
40	69	Good.	Hard, ripe. Normal.	Low flap. Spontaneous delivery of lens on completion of section.	Iritis.	None.	$\frac{20}{100}$.
41	69	Feeble. Chronic Bright's. Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap extraction 2 mos. later.	Normal.	None.	$\frac{20}{50}$.
42	57	Good.	Hard, ripe. Normal.	Graefe linear. Vitreous bead followed knife. Spoon delivery.	Iritis.	None.	$\frac{20}{100}$.
43	70	Good.	Hard, ripe. Normal.	Low flap. Profuse hemorrhage with iridectomy rendering capsulotomy difficult.	Plastic iritis.	Ether.	$\frac{10}{200}$.
44	66	Good.	Hard, ripe. Normal.	Low flap. Iris torn by forceps.	Normal.	None.	$\frac{20}{50}$.
45	65	Good.	Hard, ripe. Normal.	Low flap. Iris entangled in wound.	Iritis, slow recovery.	None.	$\frac{20}{100}$.
46	70	Feeble.	Hard, over ripe. Normal.	Low flap.	Normal.	Ether.	$\frac{20}{70}$.

No.	Age.	Health.	Quality of Cataract. Condition of Eye.	Operation and Complication.	Course of Healing.	Anæsthetic.	Vision. Primary and Ultimate
47	65	Good.	Hard, ripe. Normal.	Low flap. Preliminary iridectomy 2 weeks before.	Normal.	Ether.	$\frac{20}{70}$.
48	61	Good.	Hard, ripe. Normal.	Low flap.	Normal.	None.	$\frac{20}{40}$.
49	80	Feeble.	Over ripe. Projection uncertain.	Low flap. Patient restless. Iridecto- my small and irregular.	Iritis.	None.	$\frac{10}{200}$.
50	78	Feeble.	Hard, ripe. Other eye lost from accident, leaving irritable stump.	Low flap.	Irido-cyclitis, preceded by inflammation of old stump.	None.	0.
51	60	Good.	Hard, ripe. Normal.	Low flap. Preliminary iridectomy 2 mos before.	Normal.	Ether.	$\frac{20}{40}$.
52	73	Good.	Hard, ripe. Normal.	Low flap.	do	None.	$\frac{20}{60}$.
53	59	Good.	Hard, ripe. Normal.	Low flap.	do	None.	$\frac{20}{60}$.
54	58	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap.	do	None.	$\frac{20}{70}$.
55	72	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap.	do	Ether.	$\frac{20}{60}$.
56	70	Feeble.	Hard, ripe. Normal.	Low flap. Patient restless, section ir- regular.	Slow healing of cornea —infiltration.	None.	$\frac{20}{200}$.
57	72	Feeble.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap.	Normal.	Ether.	$\frac{20}{60}$.
58	74	Good.	Hard, ripe. Normal.	Low flap. Tough capsule, laceration insufficient. Cortex left.	Capsulo-iritis.	None.	$\frac{15}{200}$.

59	77	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap. Peripheric capsulotomy.	Normal.	None.	$\frac{20}{70}$. Discission. $V=\frac{20}{30}$.
60	73	Good.	Hard, ripe. Normal.	Low flap. Peripheric capsulotomy.	do	None.	$\frac{20}{40}$.
61	77	Feeble.	Hard, ripe. Normal.	Low flap. Peripheric capsulotomy.	do	None.	$\frac{20}{15}$. Discission. $V=\frac{20}{20}$.
62	80	Good.	Hard, ripe. Normal.	Low flap. Peripheric capsulotomy.	do	Cocaine.	$\frac{20}{40}$.
63	60	Good.	Hard, over ripe. Projection defective.	Low flap. Peripheric capsulotomy.	do	do	$\frac{20}{70}$. Discission. $V=\frac{20}{40}$.
64	64	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Peripheric capsulotomy.	do	do	$\frac{20}{40}$.
65	82	Fair.	Hard, ripe. Chronic conjunctivitis, blepharorrhoea with ectropion.	Low flap. Preliminary iridectomy 3 weeks before. Peripheric capsulotomy. Low flap.	Suppuration of corneal wound. Capsuloritis. Slow healing with pupillary membrane.	do	Fingers at 5 feet. Needling followed by suppuration. Irido-cyclitis and panophthalmitis. $V=0$.
66	70	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Peripheric capsulotomy.	Normal.	do	$\frac{20}{30}$.
67	69	Good.	Hard, ripe. Normal.	do	do	do	$\frac{20}{30}$.
68	69	Good.	Hard, ripe. Normal.	do	do	do	$\frac{20}{30}$.
69	72	Good.	Hard, ripe. Normal.	do	do	do	$\frac{20}{40}$.
70	74	Good.	Hard, ripe. Normal.	do	do	do	$\frac{20}{7}$. Discission. $V=\frac{20}{30}$.
71	54	Bright.	Soft cortex.	do	do	do	$\frac{20}{30}$.
72	72	Good.	Hard, ripe. Normal.	do	do	do	$\frac{20}{30}$. Discission. $V=\frac{20}{30}$.

No.	Age.	Health.	Quality of Cataract. Condition of Eye.	Operation and Complication.	Course of Healing.	Anæsthetic.	Vision. Primary and Ultimate
73	77	Good.	Hard, ripe. Normal.	Low flap. Peripheral capsulotomy.	Iritis.	Cocaine.	$\frac{1}{100}$. Discission. $V=\frac{2}{80}$.
74	71	Good.	do	Low flap. Peripheral capsulotomy.	Normal, but leaving opaque capsule.	do	$\frac{1}{80}$. Discission not permitted.
75	71	Good.	do	Preliminary iridectomy. Peripheral capsulotomy.	Normal.	do	$\frac{2}{80}$.
76	62	Good.	Hard. Normal.	Preliminary iridectomy and massage for ripening 2 mos. before. Peripheral capsulotomy.	do	do	$\frac{2}{80}$.
77	67	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Peripheral capsulotomy.	do	do	$\frac{2}{80}$.
78	64	Good.	do	do	do	do	$\frac{2}{80}$.
79	73	Good.	do	do	do	do	$\frac{2}{80}$.
80	79	Good.	do	do	do	do	$\frac{2}{80}$.
81	70	Good.	do	Förster's method. Peripheral capsulotomy.	do	do	$\frac{2}{70}$.
82	33	Good.	Soft.	Förster's method.	do	do	$\frac{2}{100}$.
83	75	Good.	Hard, ripe. Normal.	Graefe linear. Low flap. Peripheral capsulotomy.	do	do	$\frac{1}{100}$. Discission. $V=\frac{2}{80}$.
84	82	Feeble.	do	Preliminary iridectomy. Low flap. Peripheral capsulotomy.	do	do	$\frac{2}{100}$. Discission. $V=\frac{2}{80}$.
85	69	Good.	do	Peripheral capsulotomy.	Iritis.	do	$\frac{2}{70}$.
86	63	Good.	do	do	Normal.	do	$\frac{2}{70}$.
87	72	Good.	do	do	do	do	$\frac{2}{70}$.
88	71	Good.	do	do	do	do	$\frac{2}{70}$.
89	49	Good.	do	Low flap. Peripheral capsulotomy.	Slow healing. Pupillary membrane.	do	$\frac{2}{100}$.

90	52	Good.	Normal.	Low flap. Peripheral capsulotomy. Preliminary iridectomy. Förster's method.	Normal.	do	20. 40.	Discission. V=20.
91	60	Good.	do	Peripheral capsulotomy. Preliminary iridectomy.	do	do	20. 40.	Discission. V=20.
92	64	Good.	do	Peripheral capsulotomy. Preliminary iridectomy. Low flap.	do	do	20. 50.	
93	70	Good.	do	Preliminary iridectomy. Peripheral capsulotomy.	do	do	20.	
94	64	Good.	do	Low flap. Peripheral capsulotomy.	Iritis (slight).	do	20.	
95	51	Good.	do	Low flap.	Normal.	do	20. 40.	
96	69	Good.	Hard, ripe. Normal.	Much bleeding from iris. Peripheral capsulotomy.	Irido-capsulitis.	do	20. 50.	
97	50	Good.	Soft cortex.	Low flap. Peripheral capsulotomy.	Normal.	do	20. 50.	Discission. V=20.
98	77	Feeble.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap.	Normal.	do	20. 50.	Discission. V=20.
99	69	Good.	Hard, over ripe. Thick capsule.	Peripheral capsulotomy. Low flap. Capsulotomy insufficient, difficult delivery.	Normal. Pupillary membrane.	do	Fingers at 5 feet. Discission.	
100	50	Good.	Hard, ripe.	Low flap. Peripheral capsulotomy.	Normal.	do	20. 50.	V=15. Discission.
101	58	Good.	Normal. do	Preliminary iridectomy. Low flap.	do	do	20.	V=20. Discission.
102	71	Good.	do	Peripheral capsulotomy. do	do	do	20. 100.	Needle opening closed. V=20.
103	29	Good.	Soft. Projection poor.	Preliminary iridectomy. Liebreich's incision.	do	do	20. 50.	Choroidi- tis disseminata.

No.	Age.	Health.	Quality of Cataract. Condition of Eye.	Operation and Complication.	Course of Healing.	Anæsthetic.	Vision. Primary and Ultimate
104	66	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap. Peripheral capsulotomy.	Normal.	Cocaine.	$\frac{20}{40}$. Discission. $V=\frac{20}{20}$.
105	60	Good.	do	do	do	do	$\frac{20}{30}$.
106	62	Good	do	do	do	do	$\frac{20}{70}$. Discission. $V=\frac{20}{40}$.
107	73	Good.	do	do	do	do	$\frac{20}{30}$.
108	71	Good.	do	do	do	do	$\frac{20}{100}$. Discission. $V=\frac{20}{80}$.
109	58	Good.	do	do	do	do	$\frac{20}{40}$.
110	52	Good.	do	do	do	do	$\frac{20}{40}$.
111	74	Good.	do	do	do	do	$\frac{20}{40}$.
112	60	Good.	do	Low flap. Peripheral capsulotomy.	do	do	$\frac{20}{40}$.
113	24	Poor.	Cataracta accreta, Old sympathetic iri- do-cyclitis plastica.	Preliminary iridectomy. Extraction with spoon and forceps.	do	do	0. Choroidal de- generation.
114	44	Good.	Hard, ripe. Normal.	Preliminary iridectomy. Low flap. Peripheral capsulotomy.	do	do	$\frac{20}{40}$.
115	60	Good.	do	do	do	do	$\frac{20}{100}$. Discission. $V=\frac{20}{80}$.
116	59	Good.	do	do	do	do	$\frac{20}{30}$.
117	72	Good.	do	do	Iritis (mild).	do	$\frac{20}{80}$. Pupillary membrane form- ed and not nee- dled. $V=\frac{20}{70}$.
118	57	Good.	do	do	Normal.	do	$\frac{20}{60}$. Discission. $V=\frac{20}{80}$.
119	74	Feeble.	do	Low flap. Peripheral capsulotomy.	Slow healing.	do	$\frac{20}{30}$.
120	68	Good.	do	do	Normal.	do	$\frac{20}{40}$.

Of the failures, seven will be found to have occurred in the first fifty cases, and of the remaining two losses one (No. 113) pursued a normal healing course, but gave no sight on account of extensive choroidal degeneration (suspected before operation); the other (No. 65) was in an eye the subject of chronic blenorrhœa of the conjunctiva with marked ectropion of lower lids, when previous treatment had failed to check the discharge—the operation being done much against my better judgment, at the earnest desire of the patient. In spite of the unfavorable conditions, however, a good perception of large objects was obtained, and might have been much increased had more caution been exercised at the discission of the plastic pupillary membrane, which was done much too soon after the extraction, and at my office, a half-dozen miles from the patient's house.

The first seven losses were in consequence of irido-cyclitis, suppuration of the cornea or whole ball.

An absolutely normal healing process took place in seventy-six cases. Of the deviations from the normal healing course, when V from $\frac{20}{20}$ to $\frac{20}{200}$ resulted, iritis was the most frequent cause, occurring fifteen times; a capsulo-iritis occurred in nine cases, capsulitis in four, suppuration in the wound in three, a tardy closure of wound in three, and irido-cyclitis in one.

While the marked improvement in results after the first fifty cases must of course be ascribed in a considerable degree to my increasing experience, with its consequent greater manipulative skill, still I feel that no little credit must be given, first, to the abandonment of the sclerotic incision for the low corneal flap; secondly, to the frequent employment of preliminary iridectomy; and thirdly, perhaps most of all, to the adoption of the peripheric division of the capsule.

The primary visual result is perhaps not so uniformly good when the capsule is opened at the periphery as when the anterior portion is lacerated or removed, but the ultimate vision to be obtained, with great constancy, by a subsequent careful incision of the membrane, more than counterbalances this disadvantage.

Of the twenty-eight cases in which pupillary membranes were needled, twenty-five were markedly improved. Of the remaining three, in one (No. 30) the operation set up a cyclitis, with reduction of vision from $\frac{15}{200}$ to $\frac{5}{200}$. Here the discission was done with two needles, and, owing to the restlessness of the patient, the membrane was dragged with some force from its peripheric attachment. In the second case (No. 65), as already stated, there had existed a conjunctival blenorrhœa at the time of extraction, and the membrane was the result of a sharp capsulo-iritis. The discission was made with Knapp's bistoury, but for lack of proper precautions was followed by general inflammation and destruction of the ball. In the third case (102) the discission was done too early, and was followed by reclosure of the opening, without, however, any marked inflammatory reaction. A second needling was refused; the ultimate vision here was $\frac{20}{200}$, the primary having been $\frac{20}{100}$.

It will be seen that the amount and character of complications occurring during the operation influenced in a marked degree the course of healing and visual results.

Vitreous either preceded or followed the delivery of the lens six times, with four entire losses, and two partial successes. Profuse hemorrhage from the iris occurred seven times, but with no positive effect on result.

In a number of cases the section was too small, and almost invariably was followed by inflammatory reaction and partial success, owing probably to the free manipulation required to deliver the lens.

The extraction was effected by the help of the spoon or loop, in four cases. In two of these, loss of vitreous had preceded extraction; in the third, the lens had been luxated with the cystotome, and the fourth was a *cataracta accreta*. In the last case, the resulting failure was due to pre-existing choroidal changes (No. 113); the other three gave $V = 0$, $\frac{5}{200}$ and $\frac{20}{100}$.

In two instances a most mortifying and serious complication arose, from the introduction of the knife with the edge reversed. The first time, the blade was withdrawn before

the counter-puncture was made, and re-entered, to complete the section; but through loss of aqueous, the iris fell in front of the knife and was cut, causing an unsatisfactory iridectomy. A resulting plastic iritis was followed by $V = \frac{10}{200}$.

In the second case, the reversed blade was noticed and turned in the wound just as the point entered the anterior chamber. There was no further complication in the operation except a difficult delivery from insufficient size of section. The angle of the wound in which the rotation was made, suppurated slightly, and an irido-cyclitis left a $V = \frac{2}{200}$, due to a thick pupillary membrane, which was never needled.

The completion of the operation in these cases was certainly wrong; a far safer course would have been to desist from further interference till the puncture had healed.

One of the most frequent causes of partial success was in the leaving of portions of soft lens matter; in these cases, capsulitis and capsulo-iritis were very common, until after the adoption of the peripheric division of the capsule.

Since the introduction of cocaine, all extractions and iridectomies have been done under this agent. Before that time, a general anæsthetic (ether, except in three cases in which chloroform was used) was employed in about one-half the cases.

In my earlier experience, but little attention was paid to antisepsis; later, the instruments were immersed, before use, in alcohol. During the past three years, the antiseptic method has been faithfully carried out in all its details.

The surrounding integument is carefully washed with soap and hot water, including the edges of the lids, a drop of cocaine having first been instilled to prevent the smarting, should the soapy water touch the conjunctival surfaces. The front of ball and conjunctival cul-de-sacs are then flooded with a 1-10000 bichloride, solution, the lids closed and covered with a pad of absorbent cotton wet in the same preparation, until everything is in readiness for the operation. All instruments are first carefully wiped, then

held for a few moments in boiling hot water, and finally dipped in 1-10000 bichloride immediately before use. On completion of the operation the ball and conjunctival surfaces are again irrigated with the bichloride, and over the closed lids a compress of absorbent cotton is held in place by two turns of a flannel roller. Usually both eyes are bandaged, though when the patient is restless, only the eye operated. When both are closed, the unoperated eye is uncovered on the second or third day. I usually prefer the patient to remain in bed for three to five days, suiting himself as to position, but when this is irksome I never insist upon it, but allow him to sit up at will. No attention is paid to the amount of light in the room, except to avoid bright sunlight falling on the patient. The bandage is usually removed from the operated eye on the fifth day.

A first dressing is always made about six hours after the operation, when the cotton is usually found wet, and apt to grow uncomfortable. At this, and each subsequent dressing, once in twenty-four hours, the lower lid is gently separated from the upper, to relieve any possible accumulation of tears, but the eyeball is not inspected unless œdema of the lids or pain is present, until the dressings are permanently removed.

In event of inflammatory reaction, while other remedies are occasionally called for, I have for several years placed my almost sole reliance on *Rhus tox*: the symptoms calling for this remedy being those quite uniformly noticed when the case threatens departure from a normal healing; viz., œdema of the lids, hot gushes of tears from between the lids, and pain deep-seated through the ball and head. Later, the same remedy will still most frequently be called for when the iris and ciliary body are the seat of the inflammation; while in corneal involvement the Arseniate of Quinine has given me the greatest satisfaction.

THE INDUCED CURRENT OF ELECTRICITY IN THE TREATMENT OF MIDDLE EAR DISEASE.

BY HENRY C. HOUGHTON, M.D., NEW YORK CITY.

Preconceived ideas concerning any matter often prove a hindrance to correct information, and experience leads us to remedy errors made on account of such preconceived notions. In no case is this more truly seen than in the experience of the medical profession. Necessarily conservative, on account of responsibility to the public, and traditionally so on account of its own ethical limitations, our profession adopts new methods with great caution. We teach what our teachers taught us; we believe what our seniors believe, until experience, either of our own or others, corrects our earlier errors.

In the matter of electricity the profession, almost without exception, holds the belief that the galvanic, continuous chemical current of electricity is *the* form to be used in the treatment of aural diseases, and not until recently has there been much of an increase in the number of the minority, who hold that the induced current of electricity, the faradic or to-and-fro current, so called, produces great and permanent changes.

In a communication to the New York State Society in the volume for 1873-74, I gave the preference to the galvanic current. In an article which appears in the volume for the year 1880-81, I stated, somewhat at length, my conviction, as modified by experience, that the faradic current should follow the galvanic current, on general principles, to the following effect :

“ Certain well-established principles guide me in the treat-

ment of deafness, whether complicated by tinnitus or free from subjective sounds. Galvanism is profoundly alterative, chemical in action, rousing vitality and taxing it to its utmost. Hence its value in the early treatment of a paralysis, as for instance of an extremity, by action on large nerve trunks. Later faradism will supplement the work by stimulating single muscles by direct application. So in dealing with the ear, the muscles of the pharynx, the Eustachian tube, and also the muscles of the middle ear are roused by the galvanism, the mucous glands are made active, the nutrition of the whole tract is promoted, and we enter upon a new life. Later in the treatment faradism can be used to advantage and to a greater extent, but it is my practice to use the galvanism at intervals, perhaps every third or fourth sitting in a succession of sittings. Although this method does not show as brilliant results as that proposed by Campbell, *i.e.*, flooding the tympanum with a solution of iodide of potassium, and then passing galvanism, yet it is more free from risk, as his method causes a low grade of inflammation, and the operator must be very cautious and guard against acute inflammation of the middle ear."

Another mystic epoch of seven years has strengthened my convictions and established my practice more thoroughly than ever in the use of the induction current for the treatment of certain forms of disease of the tympanum. Not to disparage the chemical and chemico-vital effect of the galvanic current, the faradic current is indicated by the same well-established principles which should guide its application in diseases of any organ or part of the human body. These principles are so well understood that we will not occupy time in the discussion of these elementary matters.

Let us turn for a moment to the consideration of the condition of the middle ear in what is termed sclerosis of the tympanum. While this term has been criticised as incorrect, it certainly gives a correct idea of the macroscopic condition of the cavity in what is termed by Roosa as proliferous inflammation. This term and its synonyms, otitis media hypertrophica, hyperplastica, really describe a condition,

the exact opposite of that which we find in sclerosis. It is an atrophic condition, undoubtedly secondary to the previous hypertrophy and hyperplasia, the condition known by the laity as dry catarrh—a condition, by the way, so contradictory to their preconceived opinions of this disease that they deny emphatically having, or ever having had catarrh. The hypertrophy of the walls of the cavity of the tympanum with consequent diminution of its calibre, results in a condition which may be thought of as parallel to amblyopia. The failure of auditory function is not due to organic change in the perceptive apparatus, save in so far as it is due to disuse. The tensor tympani and stapedius have become atrophied and the articulations of the ossicula auditus rigid, immobile, simply from disuse. Therefore, any agent which shall restore even to a slight degree the mobility of the articulations and the nutrition of the wasted muscles will thereby restore the perceptive function. That this is true I am thoroughly convinced. That the degree in which it can be accomplished depends upon the duration and extent of the lesion of the middle ear, I am also as thoroughly convinced. Given a recent case of what is termed progressive disease of the middle ear, I anticipate a very large proportion of standard power restored, but in long standing cases, especially if the subject be in advanced age, the response is necessarily much less and the prognosis all the more unfavorable. The exact condition of the tympanum in these cases is necessarily a matter of inference only, but if it is possible to dilate the Eustachian tube after repeated galvanization, or later faradization, we infer that the function of the pharyngeal muscles and of the tympanic muscles will be gradually toned to something of its original activity. If the articulations are so immobile, on account of pseudo-ankylosis, as to be immovable, or if the stapes be ankylosed at the fenestra, we have no hope of changes being wrought by anything short of chemical, vital influences of the galvanic current. Observation of the effects of the induced current of electricity has led those who are experts in its use to modify the early opinion that it is

simply valuable as a muscular stimulant. Authorities as well known as Dr. Rockwell teach us that the induced current has a most profound alterative influence. This is not as directly chemical as the galvanic, but more truly alterative, in that it modifies the nutrition of the parts directly, and sometimes indirectly, included in the circuit. If the induction current is a stimulant of muscular activity, it necessarily acts upon the muscular structure of the blood-vessels themselves—thereby modifying the nutrition of every part brought within its influence. Upon no other hypothesis can I account for the changes which have occurred in many cases under my observation, in the past seven years, whereby the views of some of my esteemed colleagues have been corrected, they holding that the stimulation was necessarily temporary and the result of stimulation of motor centers only; whereas, the effects have been lasting as to time, and perfect as to the performance of the function. I can see no reason to believe that failure has occurred except so far as it must necessarily occur from the exposure to those conditions which produce acute and sub-acute catarrhal attacks, which necessarily leave the same sad results. I have in mind one case of catarrhal disease of the middle ear which, judging from experience with similar cases presenting exactly the same physical appearance and degree of hearing for the watch, voice, and tuning fork, would have, without treatment, progressed to a minimum of power. This patient, by a series of seances, at the close of each winter, over a period of seven years, has kept the hearing at standard, twenty-twentieths for the watch; the hearing at the outset on that side being three-twentieths, which remains at standard until the unfavorable effects of winter weather are again experienced. Each winter produces its usual effect, reducing the hearing to less than ten-twentieths.

If this were the only result obtained, the method of treatment would commend itself to aural surgeons, but in many cases when it has been impossible to raise the auditory perception to any appreciable degree as indicated by either of

the usual methods of test, watch, voice, tuning fork, one very gratifying result has followed, viz., the relief of the various forms of distressing subjective sounds. How often do we hear the expression, "Doctor, I don't care for my hearing, if by any means I can be relieved of this terrible noise." In fact, very few cases of subjective sound fail to be decidedly modified, even if they are not completely abolished. Reports might be cited from case-books, but I will not occupy the space, recommending the matter to the candid consideration of my colleagues.

A word as to methods. The best method of applying the induction current is by what I call the Eustachian electrode, which consists of an ordinary hard rubber Eustachian catheter through which a wire is passed, terminating at the beak with a platinum bead and secured at the external orifice, beyond the nose, in a suitable clasp for holding the tip of the flexible electrode attached to an induction coil; the circuit to be completed in the auditory canal by some similar clasp, ending in a short metallic point or tip which may be covered with absorbent cotton, and dipped in a saline solution. With this the auditory canal can be easily and securely closed. If desirable the entire auditory canal can be filled with the same saline solution, bringing the current directly upon the drum-head. In the majority of cases, however, I have not found this to be necessary. The current should be applied with great caution and not allowed to produce pain or great degree of contraction of the muscles of the face. Some discomfort must necessarily follow the contraction of pharyngeal muscles, but by gentle manipulation at the first seance a greater degree of contraction will be tolerated at later sittings. In cases of narrowing of the nasal passage, or in nasal stenosis, a simple tip similar to the one used in the auditory canal may be substituted for the Eustachian electrode and introduced into the anterior nares; indeed, I am convinced that the passage of the current over the nasopharyngeal mucous membrane has been in many cases a decided adjuvant to the treatment. This method of treat-

ment should be *always* associated with the internal administration of the indicated remedies and the practice of some method of inflation—preferably the following modification of Valsalva's experiment, which consists in closing the external auditory canal with the tips of the middle fingers and the nose with the face of the thumbs, and then expelling the air as is ordinarily done in that experiment. The advantages which accrue to this modification I find to be these: The Eustachian tube is as readily dilated as by Valsalva's experiment, and the drum-head is not displaced outward, as must occur when the auditory canal is not closed. Making this a part of the morning toilet, methodical habits are secured by which the desired results are more sure to follow.

ULCERATIVE LARYNGITIS.*

BY F. PARK LEWIS, M.D., BUFFALO, N. Y.

The following case is of interest for two reasons: first, as illustrating the necessity of accurate diagnosis: second, in demonstrating the value of intelligent local treatment when suitable conditions have been discovered.

Dr. — was about forty-five years of age. In the sudden death of his wife he had suffered a severe nervous shock, and his physical tone was consequently much depressed, when on the 9th of November last, a chill ushered in an acute three days' illness. A high fever, followed by great prostration, was diagnosed as diphtheria. Remedies employed were Baptisia and Merc. biniodide.

After seven days, although still weak, the doctor was able to resume his practice, but a week's exposure to the chilling fall weather caused the throat again to become sore, and speech grew gradually more and more difficult, until after two days he was unable to utter a syllable, every effort to articulate exciting severe spasms of coughing which would last several minutes.

Growing alarmed at his condition at this time, he consulted specialists, who diagnosed paralysis of the vocal cords, and for fifteen days he received treatment for this condition.

When the doctor visited my office in January he was found with a pulse of 100, skin warm and moist, little appetite, and very weak. His communications were conducted entirely by means of pencil and paper. He could not articulate, and the slightest attempt to do so was followed by spasmodic coughing. He was raising large quantities of stringy, glutinous mucus mixed with pus. He suf-

* Read by title before the Med. Soc. of the State of New York.

ferred greatly from insomnia, even anodynes giving him only from three to five hours' sleep at night.

He believed himself to be suffering from acute tuberculosis. Drs. Wright and Frost were both good enough to auscultate his chest, and found evidences only of bronchial involvement.

An examination of the throat was conducted with the greatest difficulty. The tonsils were enormous—almost touching—and the throat exquisitely sensitive. After the use of cocaine, however, the pharynx grew more tolerant of manipulation, and the cause of the trouble was discovered. At the base of the the right vocal cord, in the mucous tissue between the arytenoid cartilage and the epiglottis, was an ulcer bathed in yellow pus. The pharynx was somewhat congested, but the other tissues appeared to be normal. The doctor was immediately sent to the Buffalo Homœopathic Hospital, and the larynx was ordered thoroughly sprayed twice daily with a solution of *pinus canadensis* of one-third strength, and internally was given *Kali bich.* 3x.

The following day he was generally better, but still unable to speak. The treatment was continued. Some anodynes being necessary to give him sleep, small quantities of morphia and *ignatia* were given together. In three days he was able to whisper, and the coughing grew much less. In a week he could speak very quietly and in a low tone for some minutes. In two weeks the ulcer had entirely healed, and he returned to his home with his voice fully restored.

During this time the treatment varied only by the addition of *Spongia*, which with the *Kali* had been exhibited earlier in his illness.

The *pinus* spray was continued for several weeks, and by the time that he was discharged from the hospital his bronchial catarrh had almost disappeared.

His entire illness covered a period of three months.

Since the above was written I have removed both of the hypertrophied tonsils, and although several months have now elapsed, the larynx is apparently in perfectly normal condition.

OCULAR NEOPLASMS.

BY J. H. BUFFUM, M.D., CHICAGO.

Any growth appearing in or upon the eye or its appendages should always be regarded with suspicion. Many of the tumors which develop in and around the eye are undoubtedly benign in their inception, and may remain so for varying lengths of time, yet it is the experience of every ophthalmologist that sooner or later the tendency is to take on a malignant disposition with involvement and destruction of contiguous tissues.

The complexity of the tissues which enter into the formation of the eyeball and its surrounding parts affords distinctive elements for the development of all varieties of tumors, while the exposed position of a portion of these tissues furnishes a more favorable ground for their growth than is found in other parts of the body.

The benignity or malignity of tumors, here as elsewhere, seems to depend more upon their gross characteristics as demonstrated clinically than upon the microscopical revelation of their ultimate elements, as the latter shows us that sections of tumors benign or malignant exhibit no tissue cells that are not found in normal membranes. In any new formation its harmlessness to or destructiveness of contiguous tissues being less dependent upon the general arrangement of its connective tissue elements and its increase or decrease of cells in proportion to the amount of stroma, as shown in its microscopical examination, than upon the constitutional bent of the individual and the amount of local irritation which may be necessary for its rapid development. It is not my intention to depreciate in the least the value of microscopical examination in this connection, but I feel that to determine beyond possible doubt the nature of any tumor the clinical history is usually necessary in connection

with the microscopical examination, which alone must determine its composition and classification.

Tumors which have their beginning in the neighboring parts of the eye, as in the cavity of the orbit and the frontal, ethmoidal and maxillary sinuses, involve the eye only secondarily, yet require the most painstaking efforts to determine their early diagnosis, owing to the gravity of the affection and the impossibility of their removal without fatal result when they have advanced beyond the limits of the particular cavity in which they have their origin.

Without entering into the description of the tumors of various kinds which may arise in the tissue of the eyelids, it may be said that when application is made for an opinion, in growths of all kinds which appear upon the free margins of the lids it is better to advise their immediate excision whether they appear benign or malignant, as ordinarily the amount of tissue lost by such operations is small in those which appear harmless, and the risk of a malignant development is removed; and in those that are undoubtedly cancerous, recurrence and extensive destruction of tissue are oftentimes prevented.

When the recent literature concerning tumors springing from the tissues of the eyeball proper is scanned, the variety of new formations is found to be almost as great as those arising from the appendages of the eye. The cornea and sclera separately presenting very rarely, tumors which have origin within these tissues; while the conjunctival membrane, and particularly that portion at or near the sclero-corneal junction, seems to furnish favorable ground for their development. Among the benign tumors which arise from the conjunctiva are granuloma, papilloma, and the dermoid; while epithelioma, fibroma, melano-sarcoma, and osteoma form the malignant growths. The differentiation of the papilloma and epithelioma when occupying this situation becomes very difficult even when portions of the tumor are submitted to microscopical inspection. Diagnosis and prognosis in such cases must be exceedingly guarded, as I have seen a papillomatous tumor of small size,

which had been stationary for a long time, take on a rapid growth and malignant character from the irritation produced by the plucking of a small portion of it for microscopical examination.

The optic nerve, retina, choroid, ciliary body and iris, with the exception of gummata and granuloma, rarely present new formations other than those of a malignant nature. These intra-ocular neoplasms tend to rapid involvement and destruction of all the tissues of the eyeball, and consist mainly of sarcomata either pigmented or unpigmented according to the portion of the tissues from which they spring. These sarcomata may spread continuously by destruction of the tissue from which they spring, or secondary points of infection may arise at some distance from the primary ones, and thus form centers for the development of multiple growths either in the same tissue of origin in the eye or in the lymphatic glands, the liver or other organs. Ordinarily as long as the tumor is confined in its development to the eyeball, the removal of the latter is sufficient to prevent a recurrence of sarcoma or glio-sarcoma.

The following cases of neo-plastic growths gleaned from my case-books are of interest owing to the comparative rarity of their occurrence, and are reported more for their value in aiding the establishment of the frequency with which such tumors appear than for the peculiar features presented; also that they may possibly aid somewhat in the diagnosis, prognosis, and the certainty of the surgical or therapeutic treatment applied.

CASE I. SARCOMA OF CONJUNCTIVA.—B. A. B., æt. 52, presented himself April 5, 1886, with the following history: Four weeks ago noticed a swelling upon the inner surface of the left lower lid, below and to the outer side of the punctum lachrymalis. The growth since first noticed has increased rapidly in size, but beyond the irritation of the tumor in its contact with the eyeball has not noticed any particular pain. With a robust constitution and a good family history, no cause can be assigned for its appearance. The tumor, cylindrical in shape, measured 6 to 7 mm. in diameter and projected 3 mm. beyond the surface of

the conjunctiva of the lid, had every appearance of an ordinary granuloma, or a chancre of the conjunctiva, each of which it had been diagnosed. Its immediate removal was advised, and the growth at once dissected out with as much of the adjoining tissue as could be removed without interference with the integrity of the lid, and the wound brought together with a suture; the healing process was uninterrupted.

The microscopical examination was made by Dr. F. R. Day. After hardening in alcohol and staining with hæmotoxylin, he reported the substance of the tumor composed of small round cells massed together without method and with no dividing line between them and other tissues, and presenting every characteristic of a small round-celled sarcoma.

Two years and six months later the lid showed only a clean cicatrix at the site of the growth.

CASE II. EPITHELIOMA OF THE CONJUNCTIVA AT THE SCLERO-CORNEAL JUNCTION.—William D., æt. 47, came under observation December, 1885, with the following history: Two years ago noticed a small projection at the inner edge of the cornea of right eye. During the last few weeks it had become inflamed, and blood-vessels had appeared upon the sclera and extended to the inner canthus, giving it the appearance of pterygium. A close inspection revealed an irregularly elevated patch at the sclero-corneal junction and extending somewhat upon the cornea, oval in shape, and 2.5 and 3 mm. in diameter. The blood-vessels which radiated toward the inner canthus were similar in appearance to the leash of vessels which accompany large phlyctenules at this portion of the eye. Since it first appeared the increase in size had been very slow until within the last two months, when it seemed to be irritated by motion of the upper lid and had seemed to extend more rapidly. A few drops of cocaine solution were instilled into the conjunctival sac and a small portion of the growth removed with forceps for examination.

This portion when examined under the microscope was found to consist of epithelial and round cells with numerous nuclei. No immediate change in the appearance of the growth during the following week, but the patient was advised of its dangerous character and the necessity for its removal. He declined to have anything further done unless it gave him more trouble.

Three weeks after the removal of the small portion he returned

with the complaint that it had become more inflamed and painful, and desiring to have it removed. It was found to have filled in the part removed and extended one millimeter beyond. The tumor was thoroughly dissected off, under ether, and the base carefully scraped with a round-pointed iridectomy knife. The after-treatment consisted of cold compresses and the frequent instillation of castor oil and atropine. In twelve days the wound had nearly healed, and he was allowed to return to his home after being supplied with some powders of *Arsenicum alb.* 2x trit., which he was directed to take three times a day. He returned a month later for examination, and a small elevation was noticeable at the upper portion of the cicatrix, 0.5 mm. in height and 1 mm. broad, which was removed with as much of the adjacent tissue as was considered safe. A good recovery was made, and the Arsenic continued at intervals for seven months. Two years afterward there had been no recurrence of the growth.

CASE III. GRANULOMA, PAPILLOMA, AND EPITHELIOMA OF CONJUNCTIVA OF THE EYEBALL.—L. W. S., æt. 59, presented himself at the clinic of the Chicago Hom. Med. College, October, 1888, for treatment of a tumor growing from the conjunctiva of right eye below the cornea, which measured 1.5 c.m. long, 8 mm. wide, and 7 mm. high, extending between the lids. He stated that at the age of 35, some months after a burn of the eye from mortar, a tumor the size of a pea appeared upon the eyeball below the cornea, which was diagnosed as a polypus and removed a year after the injury. Eight years later it had recurred, and was diagnosed as a warty growth and again excised. He does not remember how soon it began to appear again, but thinks it was not for several years afterward. It has always been painless until during the last few weeks, when he thinks it was irritated by getting some lime in the eye, which caused it to grow rapidly so that he could not close the lids over it, and about the same time began to be painful. The tumor was removed by careful dissection, and the conjunctiva loosened up on each side of the wound, and the latter covered as far as possible by it, and united with sutures. Beyond considerable œdema of lids and conjunctiva no special disturbance followed the operation. The probable danger of a recurrence of the growth and the necessity of the removal of the eyeball, of which he was advised, deterred him from allowing a continued observation of the case.

The microscopical examination was made by Drs. Späch and Thomas, who reported the external appearance of the tumor as that of a mass of conical bodies packed together and united by their bases to the body of the tumor and forming a papillary coat ; while the internal structure consisted of branching tree-like stroma extending from the base of the tumor to the papilla-like elevations. The cells show the cylindrical arrangement of the epithelial cells, together with numerous round cells within, characteristic of conjunctival epithelioma.

CASE IV. MELANO-SARCOMA OF THE IRIS.—Mrs. H., æt. 55. First noticed eight years ago that there was a peculiar appearance of the iris of the right eye. During that time there had been occasional attacks of pain and inflammation in the eye, which had gradually increased in frequency, and the vision had been less after each attack until the sight had finally disappeared. The last attack occurred three weeks ago, and since then the pain had continued. Examination showed an injected eyeball with severe ciliary neuralgia and tension +2. Pupil irregular in shape, iris dilated at lower and inner portion, while at the upper portion a cyst-like development involving the upper two-thirds is noticed. The lower portion of the iris is of a dirty gray, while the upper portion, which seems almost in contact with the posterior surface of the cornea, is brown with darker spots upon its surface. The pupillary margin of the upper portion showing marked fringing with dark pigment. Aqueous humor muddy, lens hazy, and fundus indistinguishable. A sclero-corneal wound involving the upper third of the cornea was made with a linear knife, the iris seized, and fully one-half of the iris containing the growth removed ; masses of pigment were left upon the capsule of the lens where adhesion had taken place. The wound healed promptly, and the patient left the hospital ten days later.

The excised iris was sent to Drs. Day and Hale for examination, who reported that under a low power the tumor presented an irregularly nodular appearance of its surface, and much darker in color than other portions of the iris. Sections of the tumor and the iris exhibited the fibers of the sphincter pupillæ unaffected, but the underlying pigment remarkable for its proliferation. The tumor itself seemed to have developed from the pigment structure of the iris, and consisted for the most part of large masses of small cells crowded together, slight connecting

stroma, scattered spindle cells, and irregular pigment masses. The iris stroma of surface of the growth somewhat thinned; the blood-vessels larger than those of the iris proper, and thin-walled. As a result of the microscopical examination the ultimate effect of the operation was regarded with much interest.

Three months later the patient again presented herself for relief of severe pains around the eye, which had existed for a week, at which time the eye became inflamed. She was advised to have the eyeball removed, but would not consent until another week of unrelieved pain compelled her reluctant consent.

The globe was accordingly removed, and examination showed it to be nearly filled with a melano-sarcoma springing from the ciliary body and choroid adjacent to portion of the iris which had been removed in the previous operation. The patient made a good recovery from the enucleation, and died eighteen months afterward from pneumonia without having any indication of a recurrence of the sarcoma.

CASE V. PIGMENTED SARCOMA OF CHOROID WITH RECURRENCE IN ORBITAL TISSUES AND SUBSEQUENT DEATH.—Mrs. A. S. C., æt. 42, came to the Chicago Hom. Hospital for an iridectomy for glaucoma of the left eye, which had been diagnosed by an oculist whom she had consulted. The history given was, that eight months ago she had severe pain in and around the left eye, with failure of the sight. The pain involved the left side of the head, and had only been controlled by the constant use of morphine hypodermically. The eyeball presented a general injection, with much lachrymation, chemosis, and lid infiltration. Tension plus, and vision absent. Pupil dilated, iris atrophic, lens hazy, and no light reflex from fundus. Intra-ocular tumor diagnosed and eyeball removed. The bulbus showed large staphyloma posticum, and the optic nerve, which had been severed close to the sclera, was seized with a pair of forceps and excised 2 c.m. back, and the orbital tissues examined for any nodular masses which might be present. The general condition of the patient was cachectic, and recovery after the operation was slow, although the conjunctiva healed kindly.

An examination of the eyeball showed the vitreous displaced by a friable growth, well pigmented, which arose from the posterior portion of the choroid around the optic nerve entrance, while the sclera at this portion was softened, partially absorbed, and distended. The microscopical examination exhibited large masses

of round and spindle cells of various sizes in the different portions of the growth, with masses of pigment cells here and there, and the tumor unusually vascular.

Four months afterward she returned with a large, readily bleeding, pigmented mass which filled the orbit. It was learned that two months after the removal of the eye, a large nodule was noticed and felt in the orbit, which two weeks later ulcerated and bled, and soon extended beyond the lids. The orbit was cleared of all its contents, the walls scraped, zinc paste applied, and the orbit gradually filled with apparently healthy granulations; but nine weeks later she became comatose, and died, undoubtedly from sarcomatous extension to the brain.

CASE VI. SARCOMA OF CHOROID.—Mrs. K., æt. 66, came under observation September, 1887. Vision of left eye began to grow dim three months previous. No pain until during the last four weeks, when she has suffered greatly from severe aching pains in and around the eye; since which time there has been no perception of light. Eyeball shows only very slight injection. Pupil widely dilated, lens hazy, tension slightly increased, fundus indistinguishable, no pain. Diagnosis, probable intra-ocular tumor. Operation advised and declined. One year later, Sept. 29, 1888, she again presented herself with the statement that there had been absolutely no pain during the year until six days ago, when she began to have severe pain in and around the eye, with much lachrymation. The pain became constant and increased in severity until on the sixth day the cornea began to bulge; in a few hours a profuse hemorrhage occurred and continued all day. The center of the cornea had given way, and a fleshy, bleeding mass extended through it. The pain had subsided on the rupture of the cornea, and the ball appeared soft on palpation.

A few days later the globe was enucleated and found filled with a round and spindle-celled sarcoma arising from the choroid and the optic nerve entrance, with a detached retina non-adherent to the tumor.

CASE VII. GRANULOMA OF THE CHOROID.—Emma C., æt. 13, was struck in the right eye by a tufted steel-pointed projectile which had been fired from an air-rifle at a distance of thirty feet. The point of the foreign body pierced the sclera just posterior to the equator on the temporal side, and was extracted with some difficulty a few hours after the accident. The following morning, when I saw the child, the vitreous was filled with blood, the

wound discernible, and the conjunctiva ecchymotic. Under rest and the application of cold compresses the blood was sufficiently absorbed in three days to distinguish the general location of the wound of the interior of the globe, as shown by the appearance of a blood-clot which gradually absorbed during the following four days. As the clot closed up it was replaced by a mass of yellowish exudation with rays which extended into the vitreous. There was every appearance of a purulent hyalitis and possible choroiditis, and the case was accordingly watched with much care and anxiety during the next forty-eight hours, when the vitreous extension, under Merc. corr. 3x internally and hypodermic injections of the sublimate solution 1:5000 injected into the sub-conjunctival tissues in the vicinity of the external wound, became limited. On the eleventh day after injury the exudation rays in the vitreous had entirely disappeared, leaving apparently a mass of exudation upon the retina at the point of puncture of the ball. This became more and more defined, until a tumor-like projection of two millimeters in diameter was readily observed on the sixteenth day, which increased only slightly and ten days later had disappeared by shrinking, until a pigmented scar was the only evidence of the injury in an eye which had recovered its normal vision.

CASE VIII. GLIO-SARCOMA OF THE OPTIC NERVE AND RETINA.—Minnie W., æt. 2 years. "Two months ago a white spot was noticed in right eye." Such was the history given when the child was brought to my clinic, Feb. 23, 1885. The eyeball was somewhat protruded, with limited motion and slight injection of ciliary zone. The pupil appeared round and white; the fundus filled with a yellowish mass in contact with the posterior surface of the lens. During the last few weeks the child had lost flesh and had been restless at night from pain. Glioma was diagnosed and removal of the eye advised. This was not consented to until two weeks later, when the child's condition had become much worse. In the removal of the eye, owing to the enlargement of the eyeball and optic nerve, it became necessary to slit the external canthus to deliver the globe. The optic nerve was pulled outward and severed close to the foramen. As there was no gross implication of the orbital tissues they were not removed.

The eyeball was found filled with a mass, springing from and continuous with the optic nerve, well supplied with blood-vessels of various sizes, and consisting of round cells without intercellu-

lar structure. The optic nerve, which measured half an inch in diameter, exhibited the same structure and at its most posterior portion was found infiltrated with cells.

The child seemed to make a good recovery from the operation, as the conjunctiva had healed in a couple of weeks. Nothing more was heard of the case until four and a half months later, when it was again brought to the clinic on account of hemorrhage of dark blood, which had persisted for three days. The center of the cavity was found to be occupied by a dense white mass, while above and below were dark red patches from which blood was oozing. No further operation was allowed, and the child died from exhaustion two months later. The tumor in the mean time had obtained the size of a small orange, protruding between the lids, ulcerated and frequently bleeding. The remaining eye was blind six weeks before death, and exhibited the characteristic yellowish-white reflex.

CASE IX. GLIOMA OF OPTIC NERVE.—Eliza V., æt. two years, was brought to the clinic Jan. 12, 1887, the father stating that four months ago, after an attack of vomiting, the right eye was observed to protrude. The exophthalmos now is such as to prevent closure of the eyelids. The general condition of the child is very good. The sight is evidently very poor; the pupil does not react to light and is slightly dilated. Ophthalmoscopic examination reveals a normal fundus with the exception of a slight swelling and œdema of the optic disk. The history was such as to make it seem possible that there might be a dropsical condition of the nerve sheaths, simulating tumor. Apis mel. 3x was prescribed, and a week later the protrusion had lessened sufficiently to enable the lids to close during sleep. The improvement soon ceased, however, and a month later the protrusion had increased so that the eye was phimotic much of the time, and the cornea had begun to suffer from exposure. The eyeball was removed and found to be in good condition. The optic nerve for a distance of 8 mm. from the globe was normal in size; at this point it abruptly increased in diameter until at 2 c.m. from the ball it measured 1.5 c.m. at its widest part, and again became normal in size close to the optic foramen. The tumor was irregular in shape, and appeared as if developed from five foci along the nerve, and microscopically presented the characteristics of the small-celled white sarcoma. The case has since been lost sight of and the ultimate result of the operation unknown.

ON THE USE OF ATROPIA IN THE CORRECTION OF OPTICAL DEFECTS BY GLASSES.

BY HENRY C. ANGELL, M.D., BOSTON.

It is a satisfaction to the oculist to thoroughly test the optical condition of an eye under atropine, and if the proceeding were not open to serious objections, there are cogent reasons for its general practice. Our highest authority on the ophthalmoscope concedes that in the determination of the optical condition of the eye, "the use of atropia combined with the trial by glasses is and must remain, in the vast majority of cases, the most certain test possible.* But there are considerable objections to this practice, and they are so well known that I need not dwell on them. It may be remarked incidentally, however, that in certain instances a surprisingly long time elapses before a paralyzed ciliary muscle recovers its normal tone. An intelligent woman informs me that it required more than two months for her to fairly regain accommodation after submitting to the use of atropine at the hands of an itinerant spectacle-seller.

A lady put a drop of a one-half of a one per cent. solution of atropine, that had been prescribed for her child, into her right eye; six weeks later there was an observable enlargement of this pupil as compared with the other. The disturbance to the general nervous system in those of delicate organization, due to the effects of atropia instillation, amounts to real distress, and such patients dread its employment as they do a surgical operation. I recall the case of a woman who came a long distance to me last year to be fitted with

* Loring : Text-Book of Ophthalmoscopy, vol. i. p. 10.

glasses. She had heard direful and doubtless exaggerated stories of the ill effects of atropia, and consulted me in preference to another for the sole reason that somebody had told her that I did not use it. Passing over the grave objection that the use of atropia has been observed to affect unfavorably eyes predisposed to glaucoma, the familiar inconveniences attending its employment are sufficient to forbid its use if it can be dispensed with without detriment to either patient or physician.

The question then arises whether, in fitting glasses, we may generally dispense with it? Since the declaration of Mauthner that the ophthalmoscope "reveals the total amount of H,"* we may concede that a skilled observer using the upright image may measure an optical defect with perfect accuracy; and in cases complicated with amblyopia obtain more exact results than are possible by mydriatics and test types. Less skilled observers will arrive at less accurate measurements as a matter of course; and the upright image is necessary for anything like exact work, although the reversed image and the mirror alone may often be useful as auxiliary aids. The so-called keratometry or retinoscopy is cumbersome and inexact also, in comparison with the upright image, and I entirely agree with Loring that it is the "least satisfactory of any of the methods of determining the refraction of an eye, and contributes nothing which can not be more easily and more expeditiously performed by the upright image."†

Now, when we consider the fact that our prescribed glasses are not to neutralize the whole of an optical defect, but practically only that part not readily overcome by the accommodation, we may well consider whether it is really necessary for us to measure precisely the total defect, and whether an approximate knowledge of this may not suffice; this approximate estimate being easily and quickly obtainable by the upright method for those familiar with it, and

* Mauthner: *Lehrbuch der Ophthalmoscopie*, Ab. I, S. 174.

† *Op. cit.*, p. 137.

by others more slowly and laboriously by the inverted image or by retinoscopy. Every oculist should, however, familiarize himself with the use of the upright image. Twenty years ago Ed. von Jaeger taught his classes in ophthalmoscopy in Vienna this method exclusively. Since then, and until within a few years, the upright image had fallen into disuse, probably because the reversed image is handier in the observation of many of the coarser diseases of the fundus.

The accommodation itself is practically an important factor to be considered in the application of glasses, and experiment alone can demonstrate how great a part of this force an individual can apply for the amelioration of his condition. Von Graefe said long ago that many persons may use three-quarters of their entire accommodation, while others tire if one-half is used. If we paralyze the ciliary muscle we eliminate this factor in our problem, finding the total defect, but arriving at only an indirect indication of the need of our patient. I have noticed a tendency in myself and others, after having found the total amount of a H, to prescribe too strong lenses, that is, to cut off at once too much of the patient's accustomed exercise of the ciliary muscle.

A young colleague whom I lately examined has a manifest H of .50 D, a total H of 2.50 D, and yet he finds lenses of 1 D ample for his needs. *Per contra*, a patient of mine not in vigorous general health has no manifest H, a total H of .50 D only, but requires reading-glasses exactly corresponding to the total amount of the defect, viz., +.50 D.

Broadly speaking, a doctor cannot know the condition of his patient too accurately, but in the matter under consideration it is only a question of ways and means, and the time is unquestionably at hand when oculists may altogether discard the use of mydriatics in the prescription of glasses.

EAR CASES.

BY W. H. WINSLOW, M.D., PITTSBURG, PA.

One can not fail to observe in current medical literature the paucity of ear cases. There is an indisposition in those engaged in aural practice to write much about their work. The best workers are frequently the poorest writers, and they shrink from exposing their literary style to a frowning world. They are generally modest withal, and, while they feel that they are doing good to their fellow-men, they see so many others employed in the same direction that they do not consider it worth while to cudgel their brains and chew their penholders for the evolution of ideas that seem to them of little value, because of long familiarity with clinical facts.

There are other reasons. Ear practice was for a long time kicked about from physicians to surgeons, and from surgeons back to physicians, according to the dullness of the diagnosis, until Sir William Wilde rescued it from chaos and placed it in the galaxy of specialties. Before his time scientific examination, diagnosis and treatment in this important department of medicine were impossible because of the ignorance of the profession and the scattered and imperfect data. Some of our first-class medical colleges even now give very meager instruction upon ear diseases; others none at all, and a large majority of their graduates do without a special work upon the ear until necessity and suffering humanity shame them into getting one.

When so necessary a specialty as that of the eye has had

such a struggle for establishment, it is no wonder that the ear department of medicine still lags a little. The ear is hidden, difficult of dissection and study, and mysterious in its marvelous powers. It can not be turned, felt and seen like the eye. Its morbid states and therapeutics must be determined more from subjective than objective symptoms. Just as atrophy of the optic nerve leads us to suspect an approaching locomotor ataxia, so a slight objective aural change makes us investigate for a deeper one, and it requires thorough special training and acute observation and reasoning to follow through the maze of aural anatomy to the *fons et origo* of pathological mischief.

Otology is a difficult study, and less attractive than ophthalmology, and the would-be specialist begins with the eye and never finishes studying it, while he is often content with less knowledge of the ear; but he puts on his sign, "Oculist and Aurist," co-equal, concordant, symmetrical, and writes by preference about the eye.

The ear requires as much study as the eye; aural ranks are not crowded, and the good text-books upon the ear that have been printed this decade, and the earnest work of aural specialists from Vienna to San Francisco, not to specify the rich middle ground, promise a greater harvest of recorded ear cases. We may hope soon to see aural literature greatly augmented by stories of ear diseases in which there has been close attention given to therapeutics.

CASE I.—"Take it out, doctor! Oh God! take it out, it's setting me wild. Oh, the pain, the pain! My head will burst!"

"What's the matter? Something in your ear? Sit down; here; this chair; back to the light. That'll do. What is it?" said I, putting on my head mirror, turning up the gas, and getting a speculum and forceps.

"I don't know. Got it in half an hour ago while I was asleep under a tree. Oh, oh!"

"Hold still! There, that'll do." I put in the speculum, threw in the light, and saw a brownish-black bug filling the canal. He had his hooks and claws fast in the epithelium, his knees, elbows and wing-cases braced against the sides of the auditory canal, and

all stiffened by rigor mortis, so that it was with effort that my little forceps seized and drew his shining body out of his hiding-place, as the patient squirmed and twisted in his chair. It was an ordinary beetle that had crawled into the canal, could not back out, and, as air became less and the sense of imprisonment greater, had struggled onward until it had become firmly fixed hard against the membrana tympani.

The canal and membrane were reddened. I painted them with olive oil and put in a cotton pellet, while my patient was uttering congratulatory expressions. There were no sequelæ.

CASE II.—I was captured by the Irish one warm day in summer. I returned to my office after luncheon and found several women in the waiting-room and three in the hall. A good rush of business, thought I. One woman had gotten inside through the servant's sympathy, and sat upon the stairs. She held a seven-year-old girl in her arms, and proved to be her mother. I learned that the child had a button in her ear, that a doctor had been working all the morning to get it out and had failed, and had sent her down for a specialist.

I had the child brought into the back office, placed in the chair, and reflected the light into her ear. It was a bloody sight. The whole canal was excoriated, bleeding and swollen. After syringing, I saw through pouting flesh a large porcelain button lying horizontally across the canal; its edges were deep into the lateral tissues and hidden by the swollen outer parts; it was immovable by moderate traction, and attempts caused great pain.

What was to be done? Some would advise soothing washes, poulticing, syringing, and waiting until irritation and swelling had subsided. I decided against this, because the button was very large and extended from wall to wall of the bony canal, and, with the cutting pressure, the swelling would not subside until the offender was removed. Then the ignorant and unreasoning people demanded immediate action, and would have found other professional aid had I not stood in the gap.

I placed the crying, unruly child in a reclining chair near the light, administered chloroform, took hold of the button with strong forceps and withdrew it steadily. It was half of a large white button; the edges were sharp and ragged, and blood flowed from both sides of the canal as it came forth. I syringed the ear

with borax water, brushed it with sweet oil, put in cotton, and gave Aconite.

The patient did not return.

CASE III.—I had a polypus to treat which had something instructive about it. A strumous brunette girl, aged 14 years, had running ears. She was pale, anæmic, and weak. Both ears were discharging foul yellowish pus copiously. I found a fibrous polypus drooping from the upper part of the left auditory canal near the tympanic bone. It was bathed in pus and obstructing the flow from the tympanum, which was secreting pus freely from a lining that was red, spongy, and fungoid in appearance. Inflation drove air out of both meatuses. I extracted the polypus with Blake's snare, washed out both canals with borax water, packed the tympana with boracic acid, and gave Hepar 3x trituration.

The patient returned in a week with the polypus sprouting. I scraped it down with my double curette, applied chloro-acetic acid to its base, cleaned the tympanum with a strong solution of plumbum acet. to check the granulations, and packed it with boracic acid.

The next visit the tympanum was much healthier, the discharge was lessened and lighter, and the morbid growth barely showing. The same local treatment without acid was continued, and Ferrum phos. 3x given.

Under cleansing and packing the case steadily improved for a month ; then, in a long interval between visits, a softer polypus sprang up luxuriantly. I extracted it with forceps and applied tincture of iron to its base. That settled it. The tympanic inflammation slowly subsided, the mucous membrane smoothed out, the discharge lessened gradually, the general health improved, and, at this writing, only a slight discharge continues from the ear that had the polypus, the other ear having been cured. She will be well before long.

Polypus from the canal wall frequently arises from the point where pus has broken through from the mastoid cells or from an abscess over the mastoid process, which has opened into the canal through interstices in the auditory process of bone and the skin of the canal ; this passage being often

easier than that through the skin over the mastoid and the bone of the mastoid process.

The disease gets better after the escape of pus; the sinus may remain slightly open or may close, but sore pouting lips or naked red granulations remain, and, irritated by purulent discharge from the sinus or an uncured middle ear disease, a polypus is soon developed.

Snaring, scraping, cleanliness, boracic acid, tannin, iodoform, alum, lead wash, nitrate of silver, tincture of iron, chloro-acetic acid, and chromic acid, are the remedies I use in about the order mentioned to suppress exuberant granulations and to kill these dangerous complicating tumors.

CASE IV.—How does suppurative mastoid disease terminate? By resolution and absorption of products; discharge into the tympanum, or through the auditory process into the external canal, or through perforation of the external shell of the mastoid process; sometimes, alas, by forcing a way into the calvarium.

A gentleman, forty-three years of age, strumous in appearance, well developed, strong, and working steadily at bookkeeping, came to me with a sense of pressure in the left ear, which had come on from a cold. The right ear was nearly normal, with Hw. $\frac{48}{60}$. The left had Hw. $\frac{C}{60}$. Inflation drove air out through the external meatus. The external canal had a little hard cerumen, but was largely patulous. The tympanic membrane was perforated, the superior posterior quadrant gone; the malleus was in position, but depressed and adherent to the inner wall of the tympanum, and the drumhead was distorted, tumefied, and cartilaginous around its solution of continuity. The unusual spaciousness of the auditory canal attracted immediate attention. The upper and posterior walls presented deep recesses, from which hung whitish threads like shriveled parchment. I commenced its removal and continued with forceps, hook, probe and spoon for some time, getting piece after piece of the stuff, until I had a mass sufficient to fill half a thimble. There was an earthy fetor to it, but no signs of pus or putrefaction. It was simply sheets and bands of altered and exfoliated epithelium from the mastoid cells that had been accumulating for a long time.

The mastoid cells had been exposed to the air by some antecedent destruction of the anterior bony wall for an uncertain period, and the mucous membrane had undergone an alteration into something similar to derma, in the conservative efforts of nature to arrest disease, such as we see often occur in the conjunctiva of the lower eyelid when it is everted for a long time from any cause.

Operative interference with the drumhead and its contractions was not indicated, and, beyond some inflating and moistening with diluted glycerine, I did not disturb it. I cleansed the open cells and sinuses with borax water, applied glycerole of tannin, and gave the patient Calc. phos. A little cleansing and toning up of the parts was necessary for a while, but the lining seemed to take on healthier action early, no shreds appeared for some weeks, and I discharged the patient with Hw. $\frac{4}{60}$. He returned at the end of six months with some hardened wax in the canal, but there was only a little scaly detritus in the mastoid cells, which was removed easily. During the last six months the parts have remained quasi normal, and what exfoliation there has been has not left any débris.

THE NERVOUS FEATURE OF SOME PHARYN- GEAL TROUBLES.

BY LOUIS A. BULL, M.D., BUFFALO, N. Y.

At page 682 of his "Anatomy" Harrison Allen says: "The region of the cricoid cartilage is that to which abnormal sensations of the pharynx are often referred. This is doubtless owing to the fact that in irritated states of the pharynx the act of deglutition is painful, and since the cricoid lies at the lower part of the pharynx its motions determine a greater amount of distress than do corresponding motions at any portion of the throat." This has always seemed to me a very incomplete explanation of a condition which must be quite common, yet it is the only reference I find. The following case is typical.

Mr.— was sent in by his family physician to have a fish-bone removed from his throat ; he located it externally, by placing his finger over the lower part of the larynx ; every act of deglutition seemed to drive it in deeper. A most searching examination failed to reveal any signs of a foreign body, so I sent him away with a soothing gargle as a placebo.

The next night he came again, saying he was troubled exceedingly by the bone and must have it removed, as it tortured him every time he swallowed ; the regions of the tonsils, base of the tongue and larynx were again carefully examined digitally and with the mirror, with the same result—no bone. On so informing him he said : " I think you touched it with your instrument yesterday." As the throat mirror had been the only instrument used on that occasion, beyond the pillars of the fauces, I looked to see what there might be that could have been reached by the mirror in the various manipulations needed to view the larynx ; I found near the center of the posterior wall of the upper oro-pharynx a violently inflamed follicle. On touching this with a probe he at once exclaimed, touching the lower laryngeal region with his finger, " You struck it that time."

As the quickest means of relieving him I inserted a fine galvano-cautery point into the follicle, which soon brought about resolution.

The same sensation, though not so keen, is frequently found in cases of sub-acute pharyngitis located in the oral region.

It would seem as though the following explanation, based on the physiological fact that an impression made at any point of a sensory nerve is always referred to the periphery (Flint), would cover the ground.

“Sensibility of the pharynx from behind the soft palate downward is supplied by fibers of the pneumogastric from the pharyngeal plexus” (Landois). The crico-thyroid muscle receives motor fibers, and the lateral mucous membrane of the larynx receives sensory fibers from the external branch of the superior laryngeal. As is shown by Flint, “stimulation of the superior laryngeals produces intense pain and contraction of the crico-thyroids.” Hence the reference of an irritation produced in the oro-pharynx to the lower larynx implies close if not direct connection between the pharyngeal and superior laryngeal branches of the vagus.

Another class of cases, a number of which have come to me during the past three years, have all been women, and have complained of an interference with the reflex function of deglutition, generally considered by the patient to be a tumor. As the last case is a fair example of them all I will give her history.

Mrs. —, æt. 42, has never been robust, but able to do her own work until the present trouble ; is regular, other functions performed as well as could be expected. About three years before began to fail in health, at which time a sub-acute naso-pharyngeal catarrh which she had had for years became somewhat more noticeable. About a year and a half ago first noticed that her throat was sore, from which time the trouble in swallowing gradually progressed ; this at first came infrequently, and consisted in choking spells on taking mouthfuls a little larger or drier than usual. The choking spells rapidly became more frequent, being accompanied by paroxysms of coughing so severe as to almost cause her to renounce the taking of food rather than take the chances of bringing on the cough.

When I saw her she was able to be about, but exceedingly

depressed ; she by the advice of friends had been taking the treatment of an institution of "world's" fame, and told me the gist of the report made to her of the last consultation at that establishment. While they did not tell her that there was a tumor in her throat, they said the last resort lay in the use of electrolysis, but in her weak condition they were unwilling to operate and so advised that she return home.

On examination I first convinced myself that there was no tumor. I found the fauces congested and of a deep redness ; the pharyngeal and laryngeal membranes pale, with evidences of atrophy of the constrictors ; some congestion of the membrane lining the nasal chambers, from which was secreted a colorless, rather tenacious mucus which freely covered these parts and the pharynx. She flatly refused to bring on a paroxysm that I might observe its features, but said, in eating and drinking she was obliged to use the most extreme care, as if she were hurried or took more than a fraction of a teaspoonful at a time, she would choke and then cough for five or ten minutes.

It would seem as though the pathological process by which this condition is brought about was somewhat as follows : The alterations in the general nutrition, as shown by the progressive ill-health of months' duration, following the line of least resistance are localized in the fauces, inducing an inflammatory condition. The products of this inflammation are thrown out into the mucous and sub-mucous tissues of the fauces, entangling the terminal branches of the fifth, which pass to the membrane of the velum palati through the spheno-palatine ganglion, and its accompanying sympathetic filaments. These filaments of the fifth are the afferent nerves in the reflex act of deglutition, and as the consequence of this entanglement are severely blunted if not paralyzed, and are thus prevented from responding to the accustomed stimulus.

Ferrier says: "The plexiform arrangement seen in the nerves which are concerned in the synergic movements of the limbs is not manifest in the case of the cranial nerves, except in those of the pharyngeal plexus ; but there can be little doubt that here, as in the spinal centers, the nuclei

of the various nerves concerned in special physiological co-ordinations are so connected together that a co-ordinate synergy occurs on stimulation just as readily as a single muscular contraction on stimulation of an individual muscle nerve."

We know that when the functions of motor nerves are interfered with, the muscles to which they are distributed become atrophied. As we have seen, the membrane of the pharynx was pale and the constrictor muscles shrunken; it, therefore, can fairly be inferred that the pharyngeal plexus had succumbed somewhat to the general poverty of nutrition, and was consequently unable to respond to the efferent impulses given by the superior laryngeal, which was still alert, as the food passed over the epiglottis. It is easy to see that a bolus, after being passed into the pharynx and failing to be grasped and forced downward by the constrictors, would quickly be broken up and portions find their way into the larynx, causing the reflex cough.

Be these views correct or not, treatment based upon them was successful in every instance. The patients were placed, as to diet, upon the most concentrated nourishment, small quantities frequently repeated. In some of the cases the cervical sympathetic was stimulated by the mild use of the induced current; stimulating astringent applications were made to the membranes of the nose and throat; while to the fauces mildly irritating sprays under high pressure.

The thought has occurred to me, in treating reflex nervous troubles in women, that perhaps the method of wearing the hair followed by many of them might be responsible; it is evident that the hair, one of the best non-conductors of heat, is given to protect the brain. Now I have frequently, I might say almost invariably, noticed that when a woman's hair is done up upon the top of her head, that portion which is drawn up from the nape of the neck parts over the region of the medulla, leaving that great reflex center exposed to cutting winds, with no covering but the skin and bone, both good conductors. The result is obvious.

THE USE OF PHYTOLACCA DECANDRA IN OPHTHALMIC PRACTICE.

BY W. P. FOWLER, M.D., ROCHESTER, N. Y.

Phytolacca, though not as frequently called for as many other drugs, is a remedy of great value in certain diseases of the eye. In Norton's "Ophthalmic Therapeutics" we find a good description of its use in orbital cellulitis, panophthalmitis, lupus and epithelioma of the eyelids.

It has done me good service in the treatment of marginal blepharitis, hordeola, and chalazion.

The symptom, "Reddish-blue swelling of the eyelids," first led me to prescribe phytolacca in blepharitis. I had a troublesome case of three years standing, in which other remedies—Merc., Hepar sul., Puls., Sulph.—failed. The lids were much thickened, indurated, dark-red, tender to touch, and somewhat ulcerated along the ciliary border, where crusts accumulated in abundance. The lashes were of feeble growth, and in places entirely gone. Phytolacca 3d was given, and an ointment of phytolacca and cosmoline, as prepared by Boericke and Tafel, applied to the lids every night, the dried discharge being first carefully removed. The patient began to improve almost immediately, and in a month was cured. Since that time—five years ago—I have employed this remedy in many cases, and almost invariably with the best results. It is less irritating than the yellow oxide of mercury ointment.

Graphites is of great value in blepharitis, but the symptoms calling for its use are very different from the Phytolacca condition. In Graphites the edges of the lids are somewhat swollen but *light* red, and there is a tendency to

cracking of the external canthi. Moist eczematous eruptions are also frequently found on the lids.

Yellow oxide of mercury is of benefit, when the edges of the lids are red, slightly thickened, and covered with fine crusts. If there is ulceration of an indolent nature, accompanied by but little redness and tenderness, it is also efficacious.

Hepar sulph. is principally of use in *acute* inflammation of the lids, with tendency to suppuration, and tenderness to touch. Many other remedies may be indicated in this affection.

In the treatment of hordeola I have derived much benefit from Phytolacca. Have used it locally and internally, four drops of the fluid extract to two drachms of water, and internally the 3d x dil. The lotion was applied three or four times a day. Under the use of this drug the suppurative process is hastened, and the tendency to the formation of styas often removed. When new ones are just making their appearance, it causes them to disappear. In scrofulous and syphilitic cases, in which there is, in addition to the hordeola, enlargement of the cervical and submaxillary glands, it seems to be especially beneficial.

We are often called upon to treat cases of tarsal tumor—chalazion. Of course the knife is usually the best means of dealing with these growths. Occasionally, however, we find a number of very small tumors in the eyelids, too small to be removed by operation, yet persistent and troublesome. A strong tendency to the recurrence of these growths is often present, and we no sooner remove one than another makes its appearance. In such cases Phytolacca will usually prove the best remedy we have. I use it locally—either the ointment or diluted fluid extract, and internally as in hordeola.

OSSIFICATION OF A DEGENERATED CHOROID
IN AN ATROPHIED STUMP THREATENING
SYMPATHETIC OPHTHALMIA. — ENUCLEA-
TION UNDER COCAINE.—HISTORY OF CASE.

BY JAS. A. CAMPBELL, M.D., ST. LOUIS.

Metamorphosis of any tissue of the body, whereby it undergoes complete and radical change, has always been of great interest to the student of pathological histology. To the ophthalmologist such a tissue change, represented by ossification or calcareous degeneration in the choroid, presents a deeper interest and a more important significance than simply the evidence of tissue metamorphosis, for observation has taught that such a condition is a recognized and potent cause for the development of sympathetic ophthalmia in the other eye, which, if unchecked, may speedily lead to its destruction.

Ossification of the choroid is a comparatively frequent occurrence. The earlier writers found and speak of it. Scarpa described and delineated calcareous formations in the choroid. Panizzi minutely examined and described such an eye. Heller met and wrote about the same, as did Morgagni, Morand and others. In recent years, all authorities and standard text-books number ossification in the choroid among the causes of sympathetic ophthalmia; and many such cases have been reported. In fact, ophthalmological literature is full of elaborate and critical discussions on the topic. Alt in his instructive article on Sympathetic Ophthalmia (*Archives O.*, vol. v., pp. 395-478), after a critical examination of 110 eyes removed for sympathetic

ophthalmia, found choroidal ossification or calcareous deposit in a little over 9 per cent.

Notwithstanding the knowledge and general acceptance of the above statements, the facts still remain that such a condition, insidious in approach and sometimes uncertain as to symptoms, may exist for a long time and yet be overlooked, as may be seen by the following case, which I report for the lesson it contains.

In November, 1887, the Rev. J. B. H., age 56, a prominent Baptist divine of Mobile, Alabama, came under my care with the following history: When three years old the vision of the right eye was destroyed by an arrow from a toy bow, in the hands of a little playmate. After the injury, this eye was larger than the left eye until he was sixteen years old, when it burst; the result of a fall from a horse. After this it was smaller than the other eye. The left eye gave him no trouble until he was thirty years old, when, as a theological student, after excessive use of the eye, he was compelled to give up work, on account of what was then diagnosed "diseased retina." He perfectly recovered after six months' rest, and had no farther trouble until about two years before I saw him. At that time the left eye began to feel somewhat irritable when used much. It was disposed to be tender and run water. He formerly wore an artificial eye over the atrophied stump of the right eye, but as it seemed to cause some local irritation, he had ceased to wear it for about two years back. About ten months before I saw him, after overtaxing the eye, he began to see a horizontal dark line, like a thread, in the left visual field; and from time to time "a large heavy cloud" would fall downward over the whole vision, when he looked from below upward. A short rest brought some improvement. He then began to use the eye again, and soon noticed that when he would look up or down, or after any excitement, or when exhausted, flashes of light began to appear. The use of his eye was likewise attended with very much discomfort. These symptoms gradually grew worse, and finally became so annoying and threatening that he stopped work and went to some neighboring springs. He rested there four months and improved gradually but slowly. He then returned home, but after two weeks' work the old troublesome symptoms returned and his vision became bad again. He con-

sulted several oculists, who diagnosed "choroidal and retinal disturbance" in left eye, without any assignable cause, other than over-use of the eye.

My examination revealed the right eye to be an atrophied stump, about one-half the normal size. A small portion of the opaque central cornea was present, all around which the sclera came down in irregular folds. At the upper sclero-corneal margin, and extending upward on the ball, was a reddish flush, the evidence of a deep-seated inflammation. The ball was sensitive to touch in this region. $T + 3$; and it had a characteristic dense "leathery" feeling.

The left eye showed $V = \frac{15}{40}$; with $+ \frac{1}{24} = \frac{15}{20}$; with $+ \frac{1}{8}$ he could read Jaeger 2 at 8"-17". Tn. Pupil medium. Eyeball sensitive to pressure and to light. At the upper sclero-corneal region, and above it, was a deep-seated flush; and at this point the eye was especially sensitive to pressure.

Ophthalmoscopic examination of the left eye showed a clear media; a hyperæmic fundus; veins full; O. D. red, with outer margins blurry and indistinct. There was neither cupping of O. D., distortion of vessels, nor spontaneous pulsations.

In the light of the history of the case, and the symptoms, as presented by the examination made, the diagnosis given, was gradually developing sympathetic ophthalmia, depending upon bony or calcareous deposits in the choroid of the atrophied right eye, the result of chronic parenchymatous choroiditis.

The treatment proposed was immediate removal of the atrophied stump.

Owing to the fact that some case had resulted fatally under chloroform, but a short time before, in Mobile, also because he was suffering from some organic trouble in other directions, the patient positively refused to take any form of anæsthetic. Under these circumstances I explained the action and the local use of cocaine, and proposed it as a substitute. The suggestion was readily accepted; and in the presence of the hospital staff of Good Samaritan Hospital and the students of the Homœopathic Medical College of Missouri, after three applications of a 4 per cent.

solution of the muriate of cocaine, at intervals of about three minutes, the operation of enucleation was performed in the usual manner.

I had never before performed enucleation under cocaine, and subsequent investigation shows that there are comparatively few such cases on record. In most of those published, the operation has been much prolonged, in order to allow renewed applications of the cocaine to the deeper tissues, after the primary incisions were made. In this case I designedly omitted to apply any more cocaine, after the first instillations, for the following reasons: Repeated experience had taught me, that under its influence the ocular conjunctiva could be freely separated from the ball, and tenotomy of the recti muscles made, as in the operation for strabismus, with very little if any pain; and I reasoned, that after this first and important step in the operation was made, with little or no pain, the division of the optic nerve and the completion of the operation could be accomplished in so short a time, requiring but a few seconds in fact, that the operation might be readily completed without much suffering on the part of the patient. The result verified the prediction. The eyeball was quickly removed with very little complaint from the patient. In three weeks the irritation of the left eye was very much reduced and its vision had decidedly improved. With $+\frac{1}{24} V = \frac{15}{15}$; and with $+\frac{1}{9}$ he could read J. I at 8"-19".

A section of the enucleated ball confirmed our expectations. Between the detached retina and the outer choroidal layers was an ossified shell, extending from the ora serrata to the optic nerve entrance, which it encircled, leaving an opening through which the atrophied nerve had free entry. The shell was not entirely complete, however, for there were small openings at two or three points, where the ossification was not as yet filled in.

With proper remedies and many warnings the patient returned home, and from time to time sent most encouraging reports as to the favorable progress of the case. The dark thread-like line, the overhanging cloud and the flashes of

light, formerly complained of, gradually grew less. This improvement continued for some months, until the patient became involved in a series of revival meetings, when from over-use of eye, exhaustion of body, and excitement of mind, associated with such occasions, many of the old symptoms began to return. Thus threatened, he yielded to my urgent advice to quit all work and lay off for repairs, from which course much may be expected.

The object of this paper is not to advance new, or to combat old, theories as to the nature and cause of sympathetic ophthalmia. This has been done *pro* and *con* by many able pens, to which I refer the reader;* but a few points connected with the case may be referred to.

1. The great length of time between the original injury and the final appearance of sympathetic irritation—53 years.†

2. The great difference in toleration noticed and commented upon by some writers. For instance a complete bony or calcareous shell, replacing the degenerated choroid, has frequently been found in atrophic stumps in post-mortem examinations, which had never caused the least signs of sympathetic inflammation during the lifetime of the subject. While in other cases a small calcareous deposit in certain regions has produced disastrous results. This difference in toleration, however, is equally true in reference to foreign bodies of all kinds lodged at any point within the eye.

3. It will be noticed in this case, as in other cases on

* Among the many interesting articles on choroidal ossification may be especially mentioned :

(1) For full account of literature of ossification in eye, a paper by Dr. Arnold Pagenstecher, under the auspices of Prof. Heinrich Müller, in Wurtzburg; to be found in Graefe's Archives, vol. vii., pp. 99-118.

(2) H. Knapp's classic contribution, "Formation of Bone in the Eye." Archives O. & O., vol. ii., pp. 1-35.

(3) "Ossification in Eye," Dr. W. Goldzieher, *idem*, vol. ix., p. 300.

(4) "Pathology of Ossification in Eye," by Prof. Laqueur, *idem*, vol. vi., p. 89.

† Lawson "Injuries of the Eye, Orbit and Eyelids," p. 327, gives a case in which the interval was 60 years.

record, that the location of the tenderness and inflammation in the atrophied stump was duplicated in the other eye, "identical points," so to speak, most marked in the vicinity of the upper sclero-corneal border of both.

4. Also, that the most pronounced disturbance of the left eye was first more of the character of a choroido-retinitis, (discussed by V. Graefe in Archives, f. O., xii., 2-171), then gradually developed toward a choroido-cyclitis, and not of the more rapidly fatal type of sympathetic plastic irido-cyclitis.

A VOCAL CASE.

BY HORACE F. IVINS, M.D., PHILADELPHIA.

The following case is not reported with the idea that it illustrates a beautiful cure with the simillimum, for it does not ; but it serves to show what has been accomplished by persistent and cautious treatment with the means which seemed best suited to the case at its various stages. Besides the efforts which were put forth by the writer, he was greatly aided by a very competent vocal instructor, as well as by the intelligent efforts of the patient herself, without either of which the improvement must have been much slower and the final results less flattering. It is not the desire of the writer to claim more than a fair share of the credit for his beloved profession, neither does he want to extol another's to the detriment of his own calling.

On the 28th October, 1882, Miss B——, aged 19, called with reference to an affection of the nose and throat, but particularly with respect to her vocal defects, which were very annoying to her, owing to a great desire to become a professional singer. The patient had, one year before, placed herself under the care of Dr. Percy O. B. Gause for the treatment of her vocal condition, but as the doctor sailed for Europe soon afterward, Miss B—— was referred to the writer by Dr. O. B. Gause.

The history given by the patient was as follows: When 13 years old she developed scarlet fever; this was followed by a dropsical condition of the lower extremities and abdomen; a cold was contracted later, and settled in the right cervical glands. "These were coated with iodine and a suppression of the condition soon followed." This "suppression" seemed to be the starting-point of her subsequent annoyances. She stated, further, that it was often difficult

to swallow owing to the rawness and swelling of the tonsils ; hard substances being especially difficult of deglutition. For a long time there was almost no space between the tonsils, and the uvula was much elongated ; but both conditions had grown better. There was a heaviness and throbbing in the ears ; but the hearing was unaffected. The patient had been a mouth-breather much of the time since the tonsils had been enlarged. She was very hollow-chested, the left anterior chest being the worse ; she was quite deformed on that side. The chest expansion was poor for a singer, it being only $1\frac{1}{4}$ inch.

Speech was very thick and her articulation imperfect. The singing tones were very hazy, although their quality was good in some portions of her compass of $1\frac{1}{2}$ octave. It required such an effort to produce the tones as to be very unsatisfactory and fatiguing when singing for any length of time.

There were no purely chest tones, but the head tones were good. Miss B—— was able to strike the B-flat above the staff with much effort and loss of breath ; even then the tone was impure. Middle C was the lowest note that she could reach, and it had but little resonance. The G and A above middle C (the resonance tones) were very weak. The most difficult notes to strike were the transitional tones, E, F, and F-sharp, on the upper portion of the staff. The head tones were so different from the others as to give the impression that they belonged to another person, so distinct was their timbre.

Miss B—— was obliged to clear her throat much, and there was some expectoration but no nasal discharge. She had taken singing lessons for two years, and had learned many "tricks" in striking and sustaining the tones, as both she and her instructor were very ingenious and had hoped to overcome the hindrances by means of stratagem. While considerable had been accomplished much more was left undone, and for these defects the specialist was sought.

One of the most annoying complications in this case was a form of rose-cold, such as the writer does not remember

to have been mentioned in the medical literature of the subject. The symptoms and conditions were about as follows: A heaviness and dull pain in the head and nose, with a desire to press the nasal bones. "There is a sensation in the larynx which resembles rheumatism, *i.e.*, an aching, burning, and stiffness in the vocal bands. The voice becomes weak and uncertain, and it is necessary to make a great effort in order to speak or sing." Sometimes when singing "the voice cracks"; then she can not speak or sing without constant fear of "breaking down." This cracking is often the first indication of an on-coming attack. The break occurs on B or C on the staff, if from this affection, and on indifferent tones if the result of other causes. No amount of effort will prevent this calamity, though when the larynx is stiff, long singing will improve the tones but increase the aching in the muscles, as occurs in rheumatism. During the attacks the patient becomes very cross, irritable, and despondent. "There is a tickling in the larynx, as though an insect were crawling over the vocal bands; accompanied by a discharge, from the larynx, of a lump of white mucus; this does not occur at other times. There is, also, a rawness and burning extending from the bronchial tubes to the upper part of the larynx. With each inspiration there is a *sensation* of wheezing, which can not be heard. During the wheezing the lungs will not expand (?), they feel as though paralyzed."

Strange to say, there was *no nasal obstruction*, but a burning, smarting in the nostrils, with blunted sense of smell; breathing was labored, however, "with a feeling as though a ten-pound weight were on the chest." The respiratory difficulty was very severe at night and often kept her awake.

The *cause* of this modified *laryngeal* cold is the presence of odors of various kinds. This has been tested so often that there can scarcely be a doubt of it. The writer has vainly tried to detect an imaginary element in the case, and in this his patient has cheerfully assisted. Artificial flowers have been used, so perfect, indeed, that persons

have stooped to catch the delicious (?) perfume, and yet they have caused no annoyance. Flowers, etc., have been placed out of sight and scent, and yet they were detected. Upon various occasions Miss B—— has discovered flowers in a room where she has been assured none existed; and search has brought to light dead flowers or leaves, the occupants of the room having had no knowledge of them, so there was no intent to deceive. It is not necessary that the patient smell the odors—they are detected by the production of some or all of the various symptoms already recorded.

The special causes known to give rise to her symptoms are: Flowers or leaves when dried, even slightly, not if growing or if freshly cut; green grass, in the early spring; hay, after it is slightly dry, not when the grass is first cut; onions are among the worst offenders; strong perfumes of any kind, *e.g.*, paint, new calico, peppermint candy, cologne, etc.

The physical features present at the time of the first examination were: *Nose*—Slightly hypertrophied and inflamed anterior turbinateds; a spur of bony septum projecting into the left naris; slight hypertrophy of the inferior and middle turbinateds, posteriorly, and a thickening of the right side, posteriorly, of the septum. *Fauces*—Enlarged and irregular tonsils. *Pharynx*—Mild chronic catarrh. *Larynx*—Normal in appearance.

The treatment was directed against the hypertrophies. Both internal and local measures were used. The remedies employed were usually indicated for the condition present; this was very frequently an acute coryza, for which, and for the consequences, Acon., Nux Vom., Phos., Gels., and a few other remedies were given. Each fresh coryza only served to aggravate, temporarily at least, the primary condition and delay the special treatment.

The chief local measures were the superficial tenotome punctures of the anterior turbinateds and of the tonsils. The turbinateds improved temporarily, but not permanently, so their treatment was early abandoned. Each time after the tonsils were punctured the patient made pressure

with the fingers and thumb, the former placed on the tonsils and the latter externally over the tonsillar region. The pressure was occasionally exerted at other times, but only slight improvement followed this procedure; however, as the removal of the tonsils had been prohibited, this seemed to be the next best method.

The foregoing treatment, together with the cold sponge bath of the neck and chest followed by *vigorous* friction, finally reduced the cold-catching tendency to a minimum.

Although it was the desire of both Miss B—— and the writer to have the tonsils removed, it was not until many singers of high repute had been consulted that general consent was obtained. Although the voice was better, the resonance improved, the compass extended, and the ease of singing greater, the tonsils were removed on the 19th December, 1883, a little more than one year after the first visit. The tonsils were very hard, almost cartilaginous. The relief which followed the tonsillotomy was very gratifying. In a few days the resonance had greatly improved, so much, indeed, that the voice had lost most of its veiled character, the tones were produced with much less effort, and the compass and volume much improved. The operation was immediately followed by a sense of freedom from the full, stiff feeling in the fauces. Many of the devices which had proved useful in forming certain tones were no longer necessary, but confusing.

In six months the voice had nearly reached that condition in which she had so long hoped to have it. Even though the improvement was so great, internal treatment was continued, and the nasal passages were cleansed with a weak solution of chloride of zinc and glycerine, applied with a cotton-covered probe.

The patient said recently: "A full octave was added to my voice inside of a year after the removal of the tonsils, the greatest change being in the transitional tones, *i.e.*, from E to F and F-sharp on the upper part of the staff. These tones could only be taken fortissimo before the operation, but soon afterward they were easy to strike piano."

As recently as 1886 the voice had a slightly veiled character at times. It was then decided to make applications of chromic acid to the post-nasal hypertrophies. This treatment relieved the condition still further, but a slight haziness existing it was deemed best to use a 4 per cent. solution of cocaine to the anterior turbinateds and to incise the tissue covering these bodies with a galvano-cautery knife. As a very narrow blade was used to cut a single groove in the tissues, there was no marked destruction of healthy structures, as might have otherwise occurred, consequently no atrophic catarrh resulted.

The voice was then considered all that could be desired, but as there still remained one point as a probable resonance-damper, viz., the slight spur of bony septum, this was removed with a thin saw-blade, and to-day Miss B—— has resonant mezzo-soprano voice of three full octaves, and is a well-known singer in this city. She has a fully developed chest, all traces of deformity having passed away long since. The chest expansion is $3\frac{1}{2}$ inches, and a cold is a rarity.

For the laryngeal cold *Allium cepa* acts as an unfailing antagonist. If taken before an expected exposure the prophylactic action is perfect, and if taken during an attack the remedy will give relief in a few hours. The drug acts best in the 30x dilution. It is to be regretted that the tendency to the laryngeal complication has not been removed, but the annoyance occurs much less frequently than formerly, and the condition is so thoroughly at the mercy of the *Allium cepa* that the patient's nervous condition and depression of spirits have ceased to act as complications in the case.

Miss B—— is now taking the remedy in the 500x, and it is hoped that the time is not far distant when every vestige of her old trouble will have faded away under the action of the potent onion.

THE ELECTRO-MAGNET.

BY W. A. PHILLIPS, M.D., CLEVELAND, OHIO.

I.

The introduction of the electro-magnet into ophthalmic surgery, and the consequent saving of a fair percentage of cases that would otherwise be lost, renders any contribution to this subject acceptable.

The recent analysis of the total number of recorded cases, by Dr. E. Neese,* is of peculiar interest, but additional cases are still required to show conclusively, especially when the foreign body has penetrated the vitreous, what may reasonably be expected from the use of the magnet. Accordingly I take the liberty to record the following :

CASE I.—The patient was a young man. A splinter two mm. in length and about one-half as thick, struck the sclerotic immediately outside of the cornea and passed to the fundus without wounding the lens. I saw him twenty-four hours after the accident. At this time there was very little irritation ; central vision $\frac{2}{3}$, while a part of the field of vision was quite perfect. With the ophthalmoscope a faint cloudy streak through the vitreous marked the track of the particle, which could be seen lying on the retina a little downward and outward from the optic disc. Sending for an eye-magnet devised by Dr. Gruening of New York, I proceeded on the fifth day after the accident to test the little instrument in this new field of ophthalmic work. Putting the patient under the influence of an anæsthetic, a V-shaped incision was made through the sclerotic between the external and inferior recti muscles and at the equator of the globe. Having the particle in full view with the mirror, the pupil being widely dilated, the magnetic

* *Arch. of Oph.*, vol. xvii., No. 3.

needle was carefully introduced into the wound, and made to approach the splinter without disturbing the vitreous any more than was absolutely required. The steel at once adhered to the needle, and was easily extracted without the loss of any vitreous whatever. The case was subsequently treated like a cataract patient, and no symptoms of inflammation occurred till after the sixth day; and I am confident that none would have occurred at all had not a careless attendant allowed a window to be lowered over the patient's head, and a draught of cold air was thus permitted to play the cause of the mischief that followed. He took a severe cold, had an attack of intermittent fever, to which he was subject, together with a chorio-cyclitis. Severe suppuration did not, however, result, and though the sight was lost and the globe became slightly decreased in size, yet it has not since been painful, and is by far more desirable than an artificial eye. The injury occurred over seven years ago.

CASE II.—In this case the splinter struck the cornea over the lower outer pupillary margin, one extremity of the wound extending almost to the corneal center, passed through the lens, and lodged, probably, on the retina well back in the fundus. The patient was seen the following day; but the opacity of the lens had already become so great that it was impossible to locate the chip, which proved to be two mm. in length and shaped like a grain of rice. There were considerable congestion of the tunics, free lachrymation, and photophobia; but very little pain. The sight did not seem to be impaired more than would result from the condition of the lens and the situation of the wound. As rapid swelling of the lens was feared, and as it would facilitate matters somewhat in subsequently removing the cataract, should it be required, a small iridectomy was made upward, and a strong electro-magnetic needle was passed directly above the lens to about the equator and withdrawn without success. The needle was reintroduced into the vitreous body and far back into the posterior part, to a point where it would seem that the splinter had lodged, considering the direction it must have taken. No excursions were made with the point of the needle; but upon withdrawal the second time the particle was found adherent to the magnet, and was extracted without the loss of any vitreous worth notice. As there was a good deal of heat about the eye, cold dressings were ordered. On the morning of the third day after the operation, the iris was

a little inflamed, evidently due to the pressure of the swollen lens. Accordingly an incision was made through the cornea and the greater part of the lens substance was removed. Cold dressings, with instillations of atropine, were continued. All unfavorable symptoms soon subsided, and a rapid and happy recovery is the result. Vision $\frac{20}{40}$; and were it not for the corneal scar, I think the sight would be very nearly perfect.

CASE III.—A fragment 3.5 mm. long, 2 mm. wide, and .5 mm. thick, penetrated the cornea half-way between its lower border and the margin of the pupil, making a ragged wound, and lodged in the iris and lens. It had entered so deeply that it could not be successfully grasped with the forceps; hence the magnet was employed and afforded the most signal aid in preventing the piece from being pushed into the vitreous in the effort to extract it. After its removal the major part of the softened lens matter was pressed out, the remaining part becoming readily absorbed without the occurrence of inflammation.

II.

That a certain percentage of the cases in which a metallic chip has entered the vitreous body can be saved the surgery of enucleation by the early use of the magnet, suggests a word concerning

SYMPATHETIC INFLAMMATION.—Provided the chip can not be removed, should the globe be immediately eviscerated or extirpated?

It is certainly well known that not all cases in which a particle is lodged in the fundus will give rise, either quickly or remotely, to inflammation of the injured eye, or to sympathetic irritation or inflammation of the other eye. It is equally well known that they are extremely liable to do so.

In one case that came under the writer's observation, a chip suddenly caused inflammation of the injured eye with symptoms of inflammatory trouble in the other, that had penetrated the retina twenty-two years before, and had not previously given the patient any cause for alarm. It is to be admitted that the extirpation of the damaged eye immediately after the occurrence of dangerous symptoms will

arrest the sympathetic trouble in many, if not in the great majority of instances; while it is equally true that in certain cases surgical measures will not only *not* arrest the inflammation, but will actually hasten and increase it. Furthermore, it is not always easy, nor, indeed, always possible to ascertain just when the symptoms are sufficiently ominous to demand the salutary use of the scissors. Taking into account, then, the fact that the great majority of cases will sooner or later give rise to serious trouble; that operating will not always give relief after urgent symptoms have developed, it seems clearly apparent that the immediate extirpation of the injured eye should be strongly advised. The annoyance, cosmetic or otherwise, of wearing an artificial eye is of small moment compared with the impending evil that hangs like the sword of Damocles over the head of every one so unfortunate as to be the victim of the accident in question. In other words, perfect safety to the sound eye far outweighs all considerations of vanity or sentiment, and it is therefore a source of regret that there is not a greater uniformity of opinion and advice on the part of ophthalmologists in the direction of immediate extirpation.

PRISMS VERSUS TENOTOMY.

BY C. F. STERLING, M.D., DETROIT, MICH.

It has seemed to me for a long time that there is no class of affections productive of more discomfort to the patient, more puzzling to the physician, and more unsatisfactory in treatment to both, than anomalies of the ocular muscles. Theoretically these conditions have been laid down in text-books for years; every oculist is presumed to be familiar with the individual and the combined action of these muscles, and the results arising from departures from the normal standards, yet, in practice, I am convinced that with the exception of pronounced squints, paralyses, and so-called muscular asthenopia (which latter, common consent has limited to insufficiency of the internal recti), slight deviations have been largely ignored.

That there is a tendency now to make amends for former neglect in this direction I am very glad to observe; and in this respect it bears an analogy to the present recognition of the importance of the detection and correction of the slighter errors of refraction, *e.g.*, very low grades of astigmatism, that but a few years since were considered unnecessary to take into account as factors in the production of reflex nervous disturbances. That this has been largely due to the investigations and published record of the observations of Dr. Geo. T. Stevens, I am satisfied, and am willing to fully acknowledge that he has shed much light into my mind at least, in this direction.

It is, however, frequently the case that in new discoveries, or the revived recognition of old truths, there is a disposition in some directions to push the new idea beyond its legitimate limits, and the enthusiasm thus displayed often reacts to the injury both of the truth itself and its too en-

thusiastic advocates. On the other hand, it is well known that a new departure often has to make its way in the face of ridicule, opposition, and bitterness. General history, and medical history in particular, is too full of instances exemplifying these facts to necessitate any argument. That such states of mind exist in regard to the treatment of disturbances of equilibrium of the ocular muscles, as advocated by Dr. Stevens, has been abundantly shown in the discussion of this subject by various oculists, at various times and places, during this past year. It is, because I believe a great factor in the relief of many cases of obstinate asthenopia lies in the recognition of the principles which Dr. Stevens has advocated so earnestly in his recent publications, that I venture to submit the following cases from my private practice, bearing in mind that truth is found so often between extremes, and that the "golden mean" is often the highway to success. I may say incidentally, in passing, that these patients whose histories I record are in such social and financial conditions that a "trip to Europe," a "change of scene and air," "rest of the eyes," etc., are old stories and utterly unproductive of benefit; while in some cases the most careful correction of refractive errors has failed to give relief, in others no refractive error being found.

The first case, Mrs. C., referred by Dr. F. X. Spranger, consulted me Feb. 6, 1888, complaining especially of blepharospasm and pain in both eyes, the left eye suffering the most. She was excessively myopic, her vision in either eye being but $\frac{5}{200}$, which a concave glass of 8.D improved to $\frac{20}{50}$. No astigmatism present that I could resolve. The ophthalmoscope showed more or less of the choroidal changes common in these myopic cases. The pain had been present some weeks, and thinking it might be relieved by a change of glasses, she had gone to one of the opticians in a leading jewelry store in search of new ones, but had found no benefit. In this city, by the way, every prominent jewelry store has its "optical department," and advertises extensively the skill of its opticians in examining eyes, "free of charge." These opticians have consequently quite a large "practice," and when

they fail to satisfactorily correct visual errors, gravely give the customer the diagnosis—"paralysis of the optic nerve." Relief not being obtained, she visited my office.

Placing a red glass before one eye produced crossed diplopia, corrected by prism of 10° . A vertical prism also gave crossed diplopia, images brought to verticality by 10° prism. (All the tests in this article were made with candle at twenty feet.) In the diplopia produced by the red glass, there was a noticeable difference in the height of the two images, a prism of 5° being required to bring them to a level. The deviation outward was quite marked when one eye was excluded from near vision. I should have remarked earlier, that as well as the eye pains she was suffering from many nervous phenomena—headache, irritability, etc., and utterly precluded from any use of her eyes. After hopelessly trying remedies and exercise for some weeks, I made a "graduated tenotomy" of the inferior rectus, with almost magical cessation of the pain and discomfort. This relief lasted but about a week, when her suffering recommenced. I then made the same operation on the superior rectus of the other eye, with renewal of the relief.

Nothing further was done. There still remained a slight deviation in the level of the images, but the pain had entirely disappeared. The apparent insufficiency of the internal recti was no longer noticeable, she commenced to use her eyes freely, and I have not seen her for months, but have heard from her within a day or two that she has had no discomfort whatever since.

The next case, Miss Mary G. W., consulted me for asthenopic symptoms May 26, 1888. Spots before the eyes, pain in both eyes and head, inability to use the eyes for more than a few minutes, and occasional diplopia, were the main symptoms.

Refractive test as follows :

O.D. $V = \frac{2.0}{2.0}$. Some uncertainty about astig. dial.

O.S. $V = \frac{2.0}{2.0}$. Dial clear.

O.D. Hm. uncertain.

O.S. Hm. $= \frac{1}{4.2}$.

Vision very variable, indicating pronounced ciliary spasm. Atropia for forty-eight hours gave the following :

O.D. $V = \frac{2.0}{2.0} + \frac{1}{18} \text{C} + \frac{1}{60}^c$, ax 180° , $V = \frac{2.0}{2.0}$, and dial perfect.

O.S. $V = \frac{2.0}{2.0} + \frac{1}{14}$, $V = \frac{2.0}{2.0}$, and dial perfect.

There was great uncertainty about the muscles, the tests with prisms proving very contradictory and confusing ; the only facts I could be reasonably sure of, being a deviation in the level of the images of each eye. The diplopia of which she had complained was a little more pronounced, and homonymous. My record shows the horizontal deviation (hyperphoria) was 2° . and a prism 4° would correct the diplopia, *i.e.*, a prism 4° base out and 2° base up, to left eye, fused images. The tests however, were very uncertain. I gave her the following formula for temporary use, and advised rest of the eyes as far as possible until fall :

$$\begin{array}{l} \text{R. O.D.} + 1. \text{ D. } \subset + 0.5 \text{ D}^{\circ}, \text{ ax } 180^{\circ}. \\ \text{O.S.} + 1. \text{ D.} \end{array}$$

These glasses gave some relief for near work, but the pain persisted, so she spent the summer in Maine and among the White Mountains, visiting my office on Sept. 20, much improved in health and nervous tone, but her eyes as useless as before.

Possibly I should have mentioned that she had endured much grief in the loss of her father before seeing me in the spring, and her nervous system was much below par. I found at this examination that the hypermetropia had become manifest to $\frac{1}{4}$ in the right eye, and $\frac{1}{6}$ in left eye.

In producing lateral diplopia by prisms base in, the O.D. image was below the level of the O. S. image—corrected by 1° . Careful looking at the eyes showed a wider rim of sclera in the right eye between the edge of the lower lid and the sclero-corneal junction, than in the left eye. (I find this very commonly in these cases, but only by close examination, and not infrequently on prolonged watching, the eye will show a faint upward movement, as if of a sudden contraction of the fibres of the sup. rect. that the other eye does not take part in. I have learned to watch for this as almost a diagnostic sign.

The diplopia produced by a 6° or 8° prism held vertically was homonymous, brought to verticality by 7° .

Homonymous diplopia of 7° was also produced by a red glass before either eye. I told Miss W. the result of my examination, and my belief that in addition to correcting the refraction, a partial relaxation of the right sup. rect. might be required, but meanwhile I would give her a glass combining a prism for correction of the hyperphoria.

The following was the formula :

$$\begin{array}{l} R. \quad O.D. + \frac{1}{24} \text{ with prism } 1^{\circ}, \text{ base down.} \\ \quad \quad O.S. + \frac{1}{24}. \end{array}$$

In this prescription I purposely ignored the astigmatism of the right eye.

Under date of Oct. 18 she writes me : " The new glasses work like a charm ; have been able to use my eyes freely and steadily without consequent headache or any especial discomfort,"

The next case I will briefly relate. Miss Helen B., 17 years-school-girl, the picture of perfect physical health, constant pain for some weeks past on using eyes.

$$\begin{array}{l} O.D. \quad V = \frac{20}{20}. \quad \text{No Hm. or M.} \\ O.S. \quad V = \frac{6}{200}. \quad M. = \frac{1}{13}. \quad V = \frac{20}{20}. \end{array}$$

In testing for relative height of the visual images, that of the left eye (the myopic one) was the lower, corrected by 1° . The same scleral line was noticeable in the O.S. in this case. The diplopia produced by a vertical prism showed homonymous deviation of 2° . I simply gave a pair of glasses

$$\begin{array}{l} R. \quad O.D. \quad 1^{\circ} \text{ prism, base up.} \\ \quad \quad O.S. - \frac{1}{14}. \end{array}$$

with the result in four days' use of complete relief ; no headache, no hyperphoric nor heterophoric deviation. This relief has been permanent so far—now several weeks.

The most interesting case to me among many, as showing what can be done by the the use of prisms, is the following. Miss N. age 21, has been a sufferer from headaches from her earliest memory. Everything apparently had been done for her without avail. She first consulted Dr. McGuire, my predecessor, on Nov. 11, 1885. I find by his record that her vision in either eye was $\frac{20}{30}$, no manifest hypermetropia, and under homatropia no diminution of vision, and a doubtful hypermetropia of 0.5.D. No evidence of A. For some reason he gave her glasses + 1.25 D, afterward changing them to 1.50 D; but no relief was experienced, nor did the various remedies I find in his record, Ruta, *et id omne genus*, afford the slightest benefit. I find no reference in this record to any muscular deficiency or test for it.

About a year afterward she went to New York to school, and consulted while there Dr. Agnew. He found a tendency to di-

vergence of the right eye and advised tenotomy, telling her meanwhile to discontinue the use of her glasses, which had only increased her discomfort. This advice not being relished, she did not return to him. In due time she came home, and for most of the past year has been in Europe. According to her account she has not been free from pain one single moment. She consulted me Oct. 9, 1888, at which time I obtained the foregoing history, though I was familiar with the main facts before. She said it made but little difference whether she read or not, so far as increase of pain was concerned; therefore she read constantly to forget the pain. I found $V = \frac{20}{20}$ in either eye, and no refractive error. No hyperphoria, the images being absolutely level. Exclusion of the right eye induced a marked tendency outward. A red glass before either eye showed crossed diplopia fused by 17° prism. The diplopia of a vertical prism was crossed, and brought to verticality by 17° . I told her I saw no resource save tenotomy (or its equivalent advancement). She said that personally she had made up her mind to submit to any advice given, but knew it would be distasteful to her family. My reply was, that "gymnastics" might give her some relief, but that I had little confidence in it, in so aggravated a case; however, it would certainly tell me something by its trial, and would tone up the muscles preparatory to an operation, provided she would be regular in her attendance at my office. The following transcript from my case record tells more graphically than I can, the subsequent history:

Oct. 11. Crossed diplopia 17° with red glass. Can overcome no prism, base out. Give daily practice.

Oct. 16. Red glass produces no diplopia.

O.D. overcomes base out,	-	-	15°
O.S. " " "	-	-	16

Placing red glass over prism:

	O.D. overcomes base out,	-	-	6°
	O.S. " " "	-	-	7
Oct. 17.	O.D. base out,	-	-	22
	O.S. " "	-	-	23
Oct. 20.	O.D. " "	-	-	28
	O.S. " "	-	-	33
Oct. 23.	O.D. " "	-	-	29
	O.S. " "	-	-	34

Tendency to divergence much less ; uses eyes freely, and but two headaches since 9th, but one of which amounted to anything.

Oct. 24.	O.D. base out,	-	-	-	-	34°
	O.S. " "	-	-	-	-	38
	O.D. red glass and prism base out,					15
	O. S. " " " " " "					10
Oct. 25.	Severe headache to-day ; retinal veins congested.					
	O.D. Red glass and prism,	-	-			20°
	O.S. " " " " - -					26
Oct. 27.	O.D. base out,	-	-	-	-	42
	O.S. " " - - - -					42
	O.D. " " and red glass,			-		34
	O.S. " " " " " " - -					34

To-day has no deviation from perpendicular with vertical prism.

Oct. 30.	O.D. base out,	-	-	-		43°
	O.S. " " - - - -					43
	O.D. base out and red glass,			-		42
	O.S. " " " " " " -					42

The eyes hold perfectly true. Vertical prisms produce perfect vertical diplopia without deviation. The headaches seem ancient history. In the mother's language, the whole girl has been transformed.

The last case is that of one of my colleagues in this city, Dr. P., a physician in large practice, quite an athlete, and in perfect health, except that he has been always from earliest childhood a sufferer from headaches, never being free from pain, and about twice a month this culminates in a severe attack, utterly prostrating him for a day or two. He has frequently talked with me about these pains, and I have as frequently urged him to come in and let me see if his eyes had anything to do with inducing them, but until very recently he has "never found the time" to do so. A short time since, meeting him, and relating some of the cases above reported, he became very much interested, as this was rather a new idea to him. I took the opportunity to carefully look at his eyes, and found the same wider scleral margin above referred to. I said I felt sure his trouble lay in a contracted superior rectus of one eye (right), and the following day he came into my office. V. O. U. $\frac{20}{20}$, no Hm. He had been wearing for N. V. a +0.75 D, prescribed by Dr. McGuire. Producing lateral diplopia showed a marked difference in the relative heights of each visual

image, corrected by 1° prism, base down, to right eye. Without taking his refraction under atropia, I requested him to get as an experiment a glass as follows and wear it constantly:

R. O.D. prism 1°, base down.
O.S. plane.

The result was almost instantaneous relief. The pain, from which he had *never* been entirely free, has completely departed. He uses his eyes for any purpose *ad libitum*, but if the glasses are removed he is in immediate distress. In his case I recommend a tenotomy.

I have on my records many cases of similar character, but these sufficiently illustrate the points I desire to make. First, that there are cases in which relaxation of the vertical muscles by an operation seems a necessity, as in the case first reported. To have attempted to relieve this case by combining a suitable prism with a concave glass of the strength Mrs. C. required would have resulted in a pair of spectacles of excessive weight and clumsiness, besides rendering the result in such a degree of hyperphoria, I think, very uncertain. In the second case, Miss W., the refractive error (hypermetropia) is so pronounced that she is obliged to wear glasses for near work any way. The hyperphoria is so slight that the requisite prism can be combined with the spherical without noticeable increase of either weight or size. In her case the pain is only brought on by an attempt to use the eyes at close work. Perfect relief being obtained by adding the prism, where does the practical necessity exist for operating? and routine operations in support of a theory I do not believe in. If later a greater degree of hyperphoria becomes apparent, it may seem desirable to tenotomize, but certainly not to my mind at present.

In the third case, Miss B., by correcting the refraction of the myopic eye, has two eyes and binocular vision where she had but one before. To my mind the argument was sufficiently cogent, that as she should wear a glass any way for refractive correction of one eye, a prism might as

well be used instead of a plane glass before the emmetropic eye—hence why operate as long as relief was obtained?

In order to be sure that the prism was the agent in affording relief, and not merely the correction of the myopic refraction in the left eye, I had the prism removed and a plane glass substituted. The same annoying symptoms reappeared, of which she had before complained. I then had the prism replaced, with renewed relief. This appeared to me definite demonstration.

In the next case, that of Miss N., I was probably the most surprised one of all concerned, at the result. That a weak internal rectus, deviating to the extent of 17° , could in a little over three weeks' time be brought to perfect physiological action by systematic exercise, was certainly unlooked for—the more so when no less an authority than the late Dr. Agnew had pronounced a tenotomy a necessity, and in which opinion when consulted I fully concurred. Without comment on this case, I simply ask the question, had I tenotomized, and later the weak muscle had regained its full tone, what would have been the ultimate result?

The last case, that of my friend Dr. P., presents a still different aspect. Here is a case with no refractive error necessitating glasses. The prism placed before his eye completely relieves, but it sentences him to their constant use, a crutch at best, which no one willingly wears, and which may presumably be thrown away in his case by relaxation of the tendon. It seems to me that the indication is sufficiently clear for its performance, and he perfectly coincides with my conclusion on this reasoning.

It is in view of the results afforded by these cases, and I have many similar, that I am led to give the title prefixed to this simple history, and also to utter a word of caution on the one hand, against wholesale condemnation of a procedure that I feel sure marks an era in the relief of certain obstinate and puzzling cases of asthenopia, vying in importance with refractive correction, and on the other, against too hasty a resort to tenotomy, when the combination of a very low prism with refractive correction accomplishes all that

could be done by an operation. It is yet too early for the limits to be fixed. To borrow an election phrase, the returns are not yet all in, but that there are many golden grains of truth which may be washed from the gravel of acrimonious discussion concerning tenotomy for ocular muscular anomalies, I am thoroughly convinced.

OCCASIONAL VS. CONSTANT USE OF CYLINDRICAL GLASSES.

JOHN L. MOFFAT, M.D., O. ET A. CHIR., BROOKLYN, N. Y.

Structural regular astigmatism of sufficient degree to disturb vision or to cause reflex symptoms, must be corrected by the constant use of properly chosen glasses.

This proposition had been accepted by the writer as one of the accepted axioms of ophthalmology until his confidence was disturbed by evidence that some practitioners, at least, do not so regard it.

Of late several patients have come under his care for whom eminent oculists had previously ordered, with temporary benefit, astigmatic glasses for near vision only.

Astigmatism may be classified as follows:

Congenital.

		<i>Due to</i>
Acquired.	Structural.	{ Operations (wounds). Ulceration.
	Functional.	{ Existing corneal astigmatism. Wearing glasses obliquely. Reflex irritation. Drugs.

Congenital astigmatism is always structural.

The curvature of the normal cornea is usually a little greater in the vertical than in the horizontal plane; when the difference of refraction between these meridians (or between any two meridians at right angles to each other) amounts to a quarter of a dioptre, the acuteness of vision may be impaired, or various reflex symptoms be excited, requiring the use of a cylindrical glass although no stronger than $\frac{1}{4}$. If such be the case, this glass should be worn constantly.

Some may argue that, as in latent hypermetropia, a slight degree of astigmatism may be overcome by a strong eye without perceptible strain; the ill effects only appearing if the accommodation becomes weakened, and that rest and proper treatment will enable the eye to resume its functions as well as before.

Granted that such cases occur—rarely—still the proper cylindrical glass should be constantly worn until the eye has recuperated, as the ciliary muscle would thus be in less danger of irregular spasm than if it were teased by only occasional rests. But even after the eye has regained its former strength, and vision is as good without as with cylindrical glasses, the latter should be worn habitually in order to remove even the slight strain which would be an ever-present, predisposing cause of various reflex troubles, such as: conjunctivitis, blepharitis, headache, neuralgia, vertigo, nausea, nervous irritability, sleeplessness, spinal irritation, neurasthenia, chorea, etc.

Acquired structural astigmatism may result from cicatrization of the wound in cataract extraction or iridectomy, reducing the curvature of the cornea in the meridian perpendicular to the wound. A severe crescentic ulcer may have the same effect.

The extraction of the crystalline lens is apt to leave the eye astigmatic, because the usual corneal astigmatism is frequently corrected by the reverse condition of the lens.

Such astigmatism, when regular, should be treated as if congenital, except that sometimes it diminishes in degree for a month or so.* The query here suggests itself, whether the excision of a portion of the iris can possibly disturb the harmonious concentric action of the ciliary muscle, and thus cause astigmatism? Also, whether the spherical aberration of one sector of the lens uncovered by this operation might simulate astigmatism? The writer has never seen a case attributable to either of these conditions.

* See Landolt, "The Refraction and Accommodation of the Eye," p. 300.

Although normally the ciliary muscle contracts equally in all of its segments, it is able to exert some, more powerfully than others, and thus to conceal, diminish, exaggerate or reverse the corneal astigmatism present. This irregular contraction is unnatural and must be a wearing strain upon the muscle and the nervous system, even if it is not manifested until the patient's system falls below par.

As soon as the muscle grows weak it will go into spasm, possibly tonic but probably clonic. The latter condition being more distressing, will more surely drive the patient to consult an oculist, who will be more apt to examine the eye under atropine than in the case of tonic spasm.

It is slovenly practice to prescribe cylindrical glasses of either kind without having first paralyzed the accommodation.

The structural astigmatism once correctly measured, there will be no necessity of ever submitting the patient again to the ordeal, except possibly—as intimated above—after cataract extraction.

The writer has had cases of hyperopic astigmatism in which the glasses selected by the first examination were not those finally ordered, after paralyzing the ciliary muscle and re-examining when the effects of the drug had passed off.

A common cause of a slight degree of acquired functional astigmatism is the prolonged wearing of glasses tilted obliquely to the line of vision instead of perpendicular. In such position a spherical glass is practically stronger in the plane at right angles to that of its axis of rotation. This is more frequently noticed in myopes who wear the same glass for near and distant vision, especially if it be not periscopic and if it be a little too strong.

The researches of Hensen, Voelckers, and Dobrowolsky show that the various segments of the ciliary muscle are governed by the several branches of the ciliary nerve, irritation of any one of which will cause contraction of the corresponding portion of the muscle.

It is an observed fact that functional astigmatism—spasmodic—is sometimes reflex from uterine disturbances,

and as we study the matter more attentively, a number of other foci of irritation will doubtless be recognized.

As an abstract statement, it may be inferred that drugs which cure can probably cause a given condition, but in the absence of provings we are not warranted in claiming this for any particular remedy and symptom.

Physostigma has been observed to cause myopic astigmatism in the vertical meridian. It has cured spasmodic astigmatism numbers of times.

Senega is credited with the symptom: "vertical diplopia (when looking at the setting sun), one image appearing oval." *Lilium tigr.*, *Jaborandi*, *Agaricus*, and *Arg. nitr.* have cured irregular spasm of the ciliary muscle.

In purely functional reflex cases glasses will probably not be necessary for the cure.

The indication for a cylindrical glass is, not to render the eye emmetropic, but to make its refraction the same in all meridians, after which we must treat any existing presbyopia, hypermetropia, or myopia.

In the latter case the reading glasses should be weaker, but in the other two stronger, than those worn for distant vision.

Frequently, however, a simple cylindrical glass will suffice for all purposes, because, the astigmatism being corrected, the accommodation and acuity of vision become normal.

The object, then, in prescribing cylindrical glasses being to neutralize an abnormal curvature, it is surely inconsistent to apply only an occasional correction to a permanent deformity.

PARESIS OF THE THYRO-ARYTENOIDEUS.

BY H. I. JESSUP, M.D., PHILADELPHIA.

There seems to be a great difference of opinion among laryngologists as to the function of the thyro-arytenoidei muscles—some claiming them to be laxors, others asserting that they are tensors of the vocal cords.

The origin of these muscles is the retiring angle of the thyroid cartilage and the crico-thyroid membrane, while their insertion is the anterior surfaces of the arytenoid cartilages. Each muscle is composed of three fasciculi, two triangular and one horizontal and flat. This latter fasciculus is intimately connected with the vocal cord and is decidedly stronger than the other two. Its fibers are parallel to the vocal cord and its line of contraction is also parallel to the cord's free border. The two triangular fasciculi, in contracting, have a tendency to bow the horizontal fasciculus—the convexity of the bow being toward the cutaneous surface of the neck; this bowing is prevented by the combined action of the horizontal fasciculi of the thyro-arytenoidei and the crico-thyroid muscles. The thyro-arytenoideus acting alone, throughout its entirety, causes the arytenoid cartilage to be drawn toward the retreating angle of the thyroid cartilage, thus necessarily shortening and relaxing the vocal cord. But when this muscle is antagonized by the crico-thyroid, it acts as a sphincter of the glottis, through the pushing together of the free edges of the vocal cords, caused by the straightening and thickening of the horizontal fasciculi, through contraction of their fibers. Beside this sphincter-like action of the horizontal fibers, they undoubtedly give greater clearness to the voice, when antagonized by the crico-thyroids, by yielding firm support to the edges of the vocal cords

with which they are so intimately connected. Thus it is seen that most all the work (which it is the function of this muscle to perform) is done by the horizontal fasciculus; and this explains the reason why the horizontal fibers are stronger than the other fasciculi.

In paresis of the thyro-arytenoidei we have an elliptical opening between the vocal cords—anterior to the vocal processes—during phonation. This is due, in reality, to a paresis of the horizontal fasciculus alone—the triangular fasciculi being able to produce sufficient lateral traction to bow the cords. If all the fibers of the muscle were paralyzed, then its antagonist—*i.e.*, the crico-thyroid—would act too freely, and the result would be that the cords would be too tense and their free edges quite parallel.

The symptoms of paresis of the thyro-arytenoid are as follows: The voice is husky to a greater or lesser extent. The patient, if a singer, will tell you that he has not the same compass that he formerly had, the high notes being lost; that the throat becomes tired and aches after singing for a short time. In marked cases there is great tiring of the throat and even dyspnœa—from phonative loss of breath—after talking for a short time. These symptoms are quite apt to vary with the condition of the general health. The laryngoscopic examination reveals a characteristic elliptical opening between the vocal cords. During phonation the ventricular bands are very apt to overhang the vocal cords, and this often leads to the erroneous impression that the ventricular bands are swollen. The unusual prominence of the false bands is probably due to the true cords being drawn outward by the two fasciculi of the thyro-arytenoidei which are not paralyzed. The causes of this form of paralysis are, over-use of the voice in singing or public speaking; straining the muscles by attempting to sing too high, and acute and chronic inflammations of the larynx—probably by causing inflammatory infiltration and thus giving rise to pressure on the terminals of the delicate nerves which supply the horizontal fasciculi. In addition to the above causes, I have seen several cases

which seemed to be due merely to a run-down state of health. The prognosis of this form of paralysis depends very largely upon the length of time it has existed, and the cause. In most all cases of recent origin, the prognosis—as to restoration of the voice to its normal condition—is good.

In cases of long standing, due to a run-down condition of health, we can expect much improvement of the paresis, if we can improve the general health. In cases of long standing caused by pressure from inflammatory infiltration, I have found very little, if any, benefit from treatment, probably because of fatty degeneration of the muscle. The remedies which have been most useful to me are—*Rhus tox.*, *Nux vom.*, *Caust.*, and Iodine; the selection being made from the general symptoms. Rest of the muscles should be advised; the avoidance of all straining of the muscles by talking in noisy places should be insisted upon, and singing should be cut down to the minimum, in all cases. Much can be accomplished by improving the general health, by physical exercise, regular habits, and salt baths. The baths should be taken every second or third day, and should be followed by vigorous friction with a coarse towel.

As a last resort, electricity should be tried. The laryngeal electrode should be applied to the interior of the larynx, at a point as near the posterior end of the horizontal fasciculus as possible; the anode being placed over the angle of the thyroid, externally. Either the galvanic or the faradic current may be used—if the galvanic is employed we should make use of the interrupting handle, but with the faradic current this is not necessary. If the galvanic current does not produce the desired effect then the faradic should be tried, and *vice versa*. I have found the faradic current the most useful in this form of paralysis, yet there are some cases in which the galvanic gives the best results. The following case is an example of this:

Mrs. — came to me first on the 18th of October, 1888. She was a choir singer, and told me that since a severe cold caught five weeks before, and during which she had entirely lost her

voice, she had lost her high register ; she could formerly reach high G, but now could not get above the B below it. The throat tired very quickly and the voice became hoarse.

The laryngoscope showed the elliptical opening between the cords—anterior to the vocal processes—and the ventricular bands, overhanging the cord more than they normally should. The true cords showed evidence of a mild chronic catarrhal inflammation. After four visits, at an interval of five to six days, the voice was in such good condition that the patient could again reach the high G. *Rhus tox.* and *Nux vom.* were the remedies used, and after trying the faradic current twice without any benefit, the galvanic was used ; this latter form of electricity being quickly followed by improvement. At present the voice has as great compass as ever, and the only complaint is that the throat tires a little more readily than it ought.

A REPORT OF CASES OF PERSISTENT PUPILLARY MEMBRANE AND PERSISTENT HYALOID ARTERY.

BY SAYER HASBROUCK, M.D., PROVIDENCE, R. I.

If we are to be practitioners of medicine, able to diagnose and treat diseases of the various organs, we first must be thoroughly conversant with those organs in a state of health, so that we may be able to recognize their pathological changes.

Keen observers long ago pointed out the fact that in the development of each organ many changes take place before that organ reaches the perfection of its development, and the same men have shown that the development may be arrested at almost any stage, and life still go on.

For years all the standard text-books of ophthalmology have called attention in only a few words to the fact that the pupillary membrane and hyaloid artery of intra-uterine life sometimes persists after birth. Graefe and Sæmisch, as usual, give an exhaustive article on the subject, but this is in German and few have access to it.

Very few cases have been reported, and judging from the very voluminous reports of almost everything else in ophthalmology, I take it that very few cases have been seen.

The pupillary membrane, according to Graefe and Sæmisch's Hand-book, vol. ii., Anatomy and Physiology, page 14, was discovered three times, first by von Wachendorff in 1738; but later in 1742 von Haller, and in 1752 von Albin, independent of each other and of von Wachendorff, described the same membrane. These early writers differed as to the color and consistency of the membrane, but all agreed that it originated from the free border of the pupil.

This the latter investigators found to be a mistake, as it is now acknowledged to originate on the surface of the iris, back from the edges of the pupil, at a point known as the *circulus minor iridis*, leaving the margin of the pupil free so that it retains its mobility.

From its seat of origin the membrane passes over the edges of the pupil and ends either upon the capsule of the lens, or upon a pigmented disc in the center of the pupil, or it may pass completely across the pupil to the surface of the iris on the opposite side.

My attention was first called to cases of persistent pupillary membrane by the following case :

Master Freddy, aged 9, was brought to me by his mother to learn if anything was the matter with his eyes, as he had been rubbing them a good deal of late, but all I discovered was a slight conjunctival irritation ; but during the examination of his vision, which I found to be $\frac{5}{8}$ in each eye and by retinoscopy only slightly hyperopic, I noticed what seemed like two hairs across the pupil waving up and down like a slack rope, as the pupil expanded and contracted. These were attached some distance from the pupillary margin and passed across the lower half of the pupil to the surface of the iris on the opposite side.

The surface of the iris below, at about the same distance from the edge of the pupil had a fringed appearance, as though there had been several other similar bands that had snapped asunder. This prompted me to try the effect of dilatation of the pupil with atropine and cocaine, but without effect.

My second case was a complicated one.

Miss B., aged 26, consulted me for glasses, but as others had not been able to fit her she thought probably I could not ; but if I could not fit her with glasses, could anything else be done ? As a child she had sore eyes.

R. V. = $\frac{5}{20}$? Jaeger 8 or 9 with difficulty.
L. V. = $\frac{5}{30}$ with a dense leucoma.

As she predicted, glasses did not improve her vision.

There is a divergent strabismus of the left eye with a tendency to roll the right downwards, on fixation. Right eye, cornea clear,

but one-half of the pupillary space was obstructed by what seemed to be a fine network ; though at many places one could discern a clear retinal reflex.

The iritic attachment of this membrane being back from the edge of the pupil, and the pupil dilating and contracting freely to light, led me to diagnose persistent pupillary membrane. The membrane passed from the surface of the iris to a central pigmented spot on the lens and also across the pupil. It reminds me much of the illustration of Dr. Agnew's case in 16th Annual Report of the Am. Ophth. Society, though in my case the obstruction was below and more extensive. The patient being anxious to know whether an operation would help her, I said possibly an artificial pupil below might aid her ; and taking all things in consideration I am inclined to the belief that it would help ; but I have only seen her once, and may never see her again, as is often our fate with cases that we would like to follow up.

In intra-uterine life there is an artery known as the arteria hyaloidea, which passes forward from the optic nerve to the posterior capsule of the lens, and furnishes nutrition for its development, but at birth there is rarely any trace of it. Still, from their rarity these cases offer points of interest, and cases like the one of Prof. Seely's of the Russian refugees, reported by Dr. C. W. Tangeman in his interesting paper on "Persistent Hyaloid Artery," in vol. xvii., No. 3, of the *Arch. of Ophth.*, combined with Hirschberg's case similar in character, seem to teach us much of the early development of the eye. In these cases the hyaloid artery, on reaching the posterior surface of the lens, divided regularly, formed quite a network, and finally passed to the ciliary region just posterior to the iris.

It is claimed that posterior polar cataract is caused by the incomplete absorption of this artery, and this seems to me very plausible, as my attention was first attracted to the two cases that I am about to report by what I at first thought was a posterior polar cataract.

Master T., aged 15. For some time past he has suffered with pain in and about the eyes, with a blurring of the type at near vision.

I found the distant vision to be—

$$\begin{array}{l} \text{R. } \frac{5}{10} . \quad -1.25 \text{ D.}^{\circ} \quad \text{ax. } 90^{\circ} = \frac{5}{5} . \\ \text{L. } \frac{5}{15} . \quad -1.25^{\text{w}} \text{ D.}^{\circ} \quad \text{ax. } 90^{\circ} = \frac{5}{7} . \end{array}$$

This was fully a year ago, and on reading Dr. Tangeman's paper I noted that he had been unable to find but one case, that of W. W. Seely's, reported in the Trans. of the 18th annual meeting of the Am. Ophth. Society, in which the remains of the artery were attached to the lens. Believing my case to be one of this nature, I re-examined my patient and found it to be so. The artery is plainly attached to the posterior surface of the lens, and extending well into the vitreous; waving about with "vermicular movements."

The papilla appears normal, though the physiological cup is much deeper than in the other eye; and much to my satisfaction I found the vision of this eye had improved in the year from $\frac{5}{7}$ to $\frac{5}{5}$, and the patient remarked he saw no difference between his eyes.

My only other case was that of a lady in middle life.

$$\begin{array}{l} \text{R. } V. = \frac{5}{10} . \quad +1. \text{D.}^{\text{s}} \text{ } \bigcirc +.50 \text{ D.}^{\circ} \quad \text{ax. } 180^{\circ} = \frac{5}{5} . \\ \text{L. } V. = \frac{6}{50} . \quad -10. \text{D.}^{\text{s}} = \text{large objects.} \end{array}$$

The L. E. is highly myopic, and on the posterior surface of the lens was noticed a small opacity, but I failed to find any remains of the artery at this point, though in the region of the disc there was a dark wavy cord passing into the vitreous.

Dr. Tangeman sums up his observations in the following words:

"In the author's mind there is little doubt that the criticism in Hirschberg's case is unjust and was made on account of its exceeding rarity. The impression made on the observer when he first sees such a case is one of doubt until he has studied it carefully; he hesitates in making a diagnosis, as he rarely sees such a picture. It has been claimed by competent writers,* that the hyaloid artery has an accompanying vein. Upon a careful investigation of the subject and the cases reported, we are firmly led to believe that there is no hyaloid vein, nor does there seem to be

* *Recueil d'Ophthal.* 1883.

any necessity for one. The branches of the artery inosculate with small vessels coming from the ciliary processes and the iris, and in this manner the blood escapes without the intervention of a system of veins."

Vision in the majority of the cases reported is much reduced in both persistent hyaloid artery and persistent pupillary membrane, though in each, a number of cases have been reported in which there was little interference with the vision, as in two of my own cases.

CLINICAL VERIFICATIONS OF SOME OF THE REMEDIES LESS FREQUENTLY USED IN OPH- THALMIC PRACTICE.

BY E. H. LINNELL, M.D., NORWICH, CONN.

There is much that is uncertain in the practice of medicine. If we could always be sure that the administration of a given remedy would produce a certain effect, or if we could always find with certainty the true similimum for a given case, the labor of a physician would be much more satisfactory and devoid of much that is at present perplexing and harassing. So long, however, as our symptomatology is imperfect and to a greater or lesser extent unreliable, and so long as diseases vary with the temperament, constitution and habits of the individual, and so long as the intelligence and education of a patient influence the collection of subjective symptoms, so long will the physician be compelled to win success at the price of unremitting study and thought. It is always helpful to know that certain indications for remedies have proved reliable, and therefore it is hoped that the report of the following cases may not prove uninteresting.

I. HYDROCOTYLE ASIATICA IN AN INDURATED CICATRIX RESULTING FROM A CHRONIC ULCER, PRESUMABLY LUPUS.—Miss K—, aged 71, came to me from a neighboring town, May 6, 1884, with an inflamed and indurated cicatrix at the side of the nose adjacent to the inner canthus of the right eye. Both lids were drawn outward from the eyeball, leaving a cul-de-sac for the collection of tears and secretions at the inner canthus. The canaliculus of the upper lid was obliterated; that of the lower lid remained, with dilated and everted punctum. There was present chronic conjunctivitis with muco-purulent discharge and trichia-

sis. The lachrymal sac seemed obliterated, as a No. 1 probe could not be passed into the nasal duct. The patient stated that she had had a "sore" upon the nose for thirty years, which had been removed seven or eight times by plasters; the last operation having been performed in the preceeding February. I find a diagnosis of lupus noted in my case-book, but have no notes of the character of the sore prior to the operation referred to. I removed the ingrowing lashes, gave her a solution of zinc sulphate, 1 gr. to the oz., for a local application to the conjunctiva; and Hydrocotyle 6^x, four times a day. When I next saw her, May 27, there was a marked improvement in every respect. The conjunctivitis was much better. There was less induration and less inflammation, and also less contraction of the tissues, so that the lids were not drawn away from the eyeball as much as formerly. I now succeeded in passing a No. 1 probe into the nasal duct through the lower canaliculus. The same medicine was continued, and she wrote me a month later that the improvement had continued, and that she was so much better she did not need any more medicine.

II. DUBOISIN IN PARALYSIS OF ACCOMMODATION.—Mrs. A—— called upon me April 12, 1885, in much anxiety, because she thought she was becoming blind. She said she could see well in the distance, but could not see to read at all. The pupils were of normal size, and reacted naturally to light. The action of the muscles was normal except a slight insufficiency of the interni, associated with hypermetropia. She said her eyes had always been strong, and had never given her any trouble until within a few days, following an attack of diphtheria. There were, at the time she consulted me, no other symptoms, objective or subjective, other than these mentioned. I prescribed Causticum without benefit, and one week later gave her Duboisin 6x with rapid improvement, and entire cure in a short time.

Another similar case was that of Mr. C——, age about 40. He complained that he could not see anything distinctly unless it was at a considerable distance from the eye. With +4 D he could read Sn. 5D at from 12 to 9 inches. In his case the filaments of the third nerve distributed to the iris were also paralyzed. The pupils were dilated, and insensible to the stimulus of light. The extrinsic muscles were unaffected, and the eyes

otherwise normal. Duboisin 6x was prescribed, a dose four times a day, and he was presumably cured, as he was not seen again. This case was also probably post-diphtheritic, as he stated that he had suffered a week previously with coryza and sore throat.

The local effect of Duboisin in producing mydriasis and paralysis of accommodation is well known, and in the only proving of the drug of which I am aware; viz., that presented by Dr. Deady to the "American Hom. Oph. and Otol. Society," and published in the "Transactions" of the society in 1880, complete paralysis of accommodation, preceding dilatation of the pupil, was caused by the internal administration of the drug. Perhaps it has been used by other oculists for similar cases, but I do not remember to have read of cases of paralysis of the accommodation cured by it.

III. AMMONIUM CARB. IN PHLEGMONOUS ERYSIPELAS OF THE LIDS.

March 20, 1888—evening.—Mr. W—, 75 years old, has facial erysipelas, both cheeks inflamed. Right eye closed, lids very much swollen, dark redness, a few vesicles here and there; tongue dry, brown in center with white edges. Lies in a stupor, but can be roused, and made to answer questions. Temp. $105\frac{1}{2}^{\circ}$. R. Am. carb. ix hourly.

March 21, 8 A.M.—Swelling and heat of face diminished. Temp. 103° . Perfectly rational. Tongue moist. Suppuration of lids. Continue medicine. Evening—About the same, though weaker, pulse intermits every third or fourth beat. Continue medicine, and give whisky, half an ounce once in six hours.

March 22, A.M.—Temp. $101\frac{1}{2}^{\circ}$. Face better. Very restless. Bowels loose; frequent painful urination. Pulse slow and intermittent. Digitalis. Evening—Temp. $102\frac{1}{2}^{\circ}$. Inflammation better on face, but has extended to neck and ears; no more diarrhœa or dysuria. Return to Am. Carb.

March 23, A.M.—Slept well latter part of night. Temp. 99° . Face better. Eyes still closed and so swollen can not be opened enough to get a glimpse of eyeball. Pulse stronger and more rapid, and intermits one in 12 to 20 beats. Continue Am. carb. Evening—Temp. $101\frac{1}{2}^{\circ}$. Otherwise about the same. Continue.

March 24.—Had a comfortable night, and face continues to improve. Temp. normal. Right eyelid much swollen and infiltrated with pus, which oozes from several small openings. Poul-tice with flaxseed, slippery elm and charcoal. Lach. 30.

I will not relate the further course of disease in detail, but will simply state that he had an uninterrupted and perfect recovery. The eye was unaffected, and the lids healed without contraction or visible cicatrix except a very minute one on the lower lid. There was no return of fever or cerebral symptoms. Rhus was the principal remedy from this date, and a solution of peroxide of hydrogen was used for bathing the lids and to drop into the eye. Although Am. carb. did not cure the case, it did rapidly relieve the alarming symptoms and arrest the further development of the inflammation, which, if it had not been speedily checked, would undoubtedly have caused sloughing of the lids and probably loss of the eye, if not the life of the patient.

IV. CHIMAPHILA IN PTERYGIUM TENUIS.—The following will serve as an illustration of the class of cases in which the remedy has done me good service.

Mr. M——, of Willimantic, consulted me June 27, 1883. He presented a pterygium tenueis of each eye, extending from the edge of the cornea to the internal canthus. It did not encroach upon the surface of the cornea proper. Near the apex, the growth was smaller and prominent. He complained of smarting and slight mucous discharge. The conjunctiva palpebræ was normal. I prescribed Chimaphila ix , two drops four times a day, and a solution of boracic acid, 10 grs. to the oz., to be instilled night and morning. I saw him again Aug. 2, at which time the growth had diminished in size fully one-half. There was no vascularity, and the prominence of the apex was all gone; the discharge and the subjective symptoms were absent, and there remained simply a slight yellow thickening of the conjunctiva extending from the corneal margin about half-way to the inner canthus. The same treatment was continued, but without further improvement.

Aug. 20, 1885.—Miss A——. Pterygium at inner side of each eye. That of right eye is pale yellow and thin, and that of left is somewhat inflamed: complains of smarting and soreness on moving eyes. \mathcal{R} . Chim. ix . No local application.

Sept. 5—Inflammation has disappeared, leaving a slightly thickened pale yellow stripe on each eye.

V. CINNABAR IN ORBITAL NEURALGIA.—I have found the symptom of pain commencing at the inner canthus, and following the line of the upper edge of the orbit, a reliable indication for this remedy, as in the following case :

Mr. M—— consulted me Sept. 16, 1881. He stated that a few days previously he got some hot tar in his right eye. The burn had entirely healed, but the eye was weak, and he suffered from neuralgic pains, taking the course above mentioned. Cinnabar 6x cured promptly.

VI. PHYSOSTIGMA IN TORPOR RETINÆ.—The following case was associated with a high degree of spasm of accommodation. Whether it would be beneficial in simple cases of torpor retinæ unassociated with spasm of accommodation, I do not know, but the case is suggestive.

Grace L——, aged eleven, consulted me July 7, 1884. She had been using $-2.50D$ constantly for a year and a half, prescribed by an ignorant optician. Of late her eyes had become painful and sensitive, and her sight had very much deteriorated. $V.=\frac{20}{100}$, o. u.; but with either $-2.50 D$ or $+1.00 D$ she could read $\frac{20}{20}$. Without glasses she could not read even Jaeger No. 14, and every attempt to use her eyes gave severe pain ; she also suffered with extreme photophobia, and twitching of the lids. I prescribed entire rest of the eyes, dark glasses, and Physostigma 6x. Under this treatment she recovered in the course of about six weeks. Distant vision rose to $\frac{20}{30}$, and near vision to the ability to read Jaeger 3, without glasses. The refractive condition proved to be hypermetropic astigmatism, and with suitable glasses her sight was made perfect, and she was able to go back to school and resume her studies.

THROAT LESIONS IN TYPHOID FEVER.

BY GEO. G. SHELTON, M.D., NEW YORK.

Enteric fever, together with typhus, remittent, and other diseases of that class known as low fever, frequently develop during their course some pharyngeal or laryngeal manifestations. These are often no more serious than a simple erythema of the mouth and fauces, and cause but little inconvenience beyond the temporary dryness, and slightly painful deglutition. They rarely demand medical interference, and spontaneously relieve themselves as the patient progresses toward recovery.

When there is great physical depression, and the bodily nutrition is low, this simple or mild inflammation of the pharyngeal mucosa may become a grave and serious complication. Secondary diphtheria may ensue, and when such an unfortunate occurrence takes place the prognosis becomes exceedingly doubtful. The patient, already debilitated by the severity of the febrile disease, is illy prepared to cope with such a formidable complication.

Hardly less serious in nature, but occurring more frequently than diphtheria, is that destructive process that attacks the laryngeal cartilages, involving the mucous membrane of the entire pharyngeal and laryngeal structures, at times assuming the form of a general phagedenic ulceration or else resulting in a laryngeal or trachæal perichondritis.

The relative frequency with which these severe complications have manifested themselves has been recorded by different observers. Heinze's observations, taken from the pathological institution in Leipzig, show, out of 113 cases of typhoid fever, 13 cases of laryngeal ulceration. Greisenger claimed that laryngeal ulcers are presenting one-fifth

of the fatal cases in Germany; and Hoffman found in 250 autopsies 28 cases of ulceration, and that in 22 of the 28 the morbid process had extended to and involved the larynx; and Hutchinson, in his article on typhoid fever, in Pepper's System of Medicine, believes them to be present in many cases in which they are not observed, and also says "that they were formerly supposed to be the result of typhoid infiltration of the laryngeal glands, but that careful investigation has shown that they are the consequence of diphtheritic inflammation of the mucous membrane."

Cohen, in his treatise on the throat, refers to chondritis and perichondritis as occurring in typhoid fever at a period varying from the second week to the establishment of convalescence. He believes, to quote him accurately, that "the cricoid and arytenoid cartilages are most frequently involved, the latter occasionally primarily, it is maintained, but usually as an extension of ulcerative processes from the intra-laryngeal surface of the posterior wall of the larynx, beginning in the glands of the meso-arytenoid fold or in those at the base of the cartilages."

It is not reasonable to suppose that all of the cases in which ulceration of the structures of the throat exists in low fevers, are observed. The inability of the patient during a considerable period of the disease to indicate or describe his symptoms, and the extreme difficulty under these circumstances of instituting laryngoscopic examination, prevent a recognition of these complications by the attending physician. That they do occur, and often cause a fatal termination to the disease, we know from the statistics recorded above; and from their serious character, that they occur and cause extremely serious sequelæ when recovery takes place, is also within the experience of many laryngoscopists.

In this connection a brief description of an interesting case of this character, kindly referred to me by Dr. Williams of Canton, N. Y., may be of interest.

M. S.—recovered from an attack of typhoid fever eighteen months previous to his visit to my office; was not aware of any

previous laryngeal trouble, but on his recovery he found himself partially aphonic, and has remained so until the present time. His voice at this time is a deep, husky whisper, requiring much effort on his part. Examination revealed a deep fissure just superior to the right tonsil; general pharyngeal hyperæmia; epiglottis inflamed and swollen on the right side; complete immobility of the left cord and left arytenoid cartilage, the latter with its fellow of the opposite side greatly swollen and thickened. The left cord appeared as if bound down by old adhesions; a portion of the cord gone. Upon phonation almost all of the space intended to be covered by the left cord was open, leaving a triangular opening in the glottis, and thus absolutely preventing the power of clear speech. I have not heard from the case since its return, but refer to it here as a rare case, to illustrate the great amount of destruction that can occur under these conditions.

POLYPUS OF THE TYMPANIC CAVITY, WITH VERY SMALL PERFORATION OF THE MEM- BRANA TYMPANI.

BY W. P. FOWLER, M.D., ROCHESTER, N. Y.

The following case is, for two reasons, an interesting one :

First, on account of the fact that a polypus rarely develops in the tympanum when perforation of the drum-head is of such small size ; and second, because it illustrates the value of bichromate of potash as an application in the treatment of small polypi.

July 9, 1888, Miss C. consulted me in regard to her ears. She stated that she had been nearly deaf in the R. E. for five years, and that H. in the L. E. was failing. No severe pain had been experienced, but for nine years there had been a discharge from the R. E. Complained of some tinnitus, and of a "stuffy" feeling in the ears.

Five years before she consulted me, a prominent oculist had treated her for several weeks. He attempted, by enlarging the perforation and using instruments, to remove the polypus. His efforts were fruitless, however, and he discharged the patient with the comforting remark that the polypus would probably grow, burst through the membrane, and could then be removed.

On examining the ear, I found that the m. t. was pressed outward, and through it the bright red polypus could be plainly seen. When first glancing into the ear, I thought the m. t. was absent, but a more careful inspection revealed the smooth surface of the drumhead, which was perforated in the posterior-inferior quadrant. The opening was not larger than a pin-head, but through this a small bead of the growth protruded. By using Siegel's otoscope, a drop or two of muco-purulent discharge tinged with blood was drawn out. There was not much tenderness of the parts, and no evidence of acute inflammation. Hearing was greatly reduced, the watch being heard only on contact.

In the left ear, there was chronic catarrhal otitis. $H. = \frac{7}{12}$. m. t. depressed and somewhat dull. Pharynx catarrhal. Kali mur. 3x. was prescribed, and the ears inflated by Politzer's method.

For the purpose of removing the polypus, a saturated solution of bichromate of potash was used. The application was first made to the small protruding portion of the growth. This in three days had lost its bright red color, and appeared as a grayish-purple, stringy mass hanging from the perforation. The solution was applied daily for a week. Bits of absorbent cotton saturated with the potash were gently pressed against the perforation,—which was now enlarged—and presenting portion of the polypus. On the seventh day after inflating the ear, a larger portion of the growth escaped through the perforation. With the angular forceps I drew out the entire polypus, which came away as a long, stringy substance, altogether making a mass about the size of a large pea. There was no soreness of the ear, and no hemorrhage.

After this, the dry treatment was substituted—removing the discharge with absorbent cotton, and then using boracic acid. At the expiration of five weeks the patient was discharged cured, with $R. H. = \frac{2}{12}$, $L. H. = \frac{1}{12}$. The perforation of the m. t. did not close, but remained about as large as when I first saw it.

There are on record a very few cases of polypus of the middle ear with imperforate tympanic membrane. There are recorded a larger number of cases—though few—in which the cavity of the tympanum was filled with a polypus, yet the drum-head intact with the exception of a very small perforation. This case is the only one of the kind that has come under my care.

Thirteen years ago I read a paper before the N. Y. State Homœopathic Medical Society, calling attention to the use of kali bichromicum as a remedy in the treatment of aural polypi. Of course my experience with this drug was then much more limited than now; but I can confirm most of what I then said in regard to its value as a means of ridding the ear of exuberant granulations or polypi. When the growth is old, firm and fibrous, the potash sometimes fails to have much effect, but such cases are rare. In the treatment of mucous polypi it has never failed me, and

as a means of killing those small yet troublesome exuberant granulations so often encountered in chronic suppuration of the middle ear, it is, I believe, unsurpassed.

Chromic acid is efficacious, but too severe. It attacks the healthy tissues as well as the granulations.

Nitrate of silver acts almost instantaneously, but *superficially*, and, like almost all caustics, often does more harm than good by *partially* killing the polypus and exciting the remainder to renewed activity and growth.

Alcohol, either pure, diluted, or combined with a solution of boracic acid is valuable in some cases ; but to get its full effect two or three applications a day are in most instances necessary, and how often can the physician see a patient so many times during the twenty-four hours? True, the patient's friends can sometimes drop the alcohol into the meatus, but this practice, so far as my observation goes, is usually anything but satisfactory.

The claim made by some specialists that boracic acid will usually remove excessive granulations from the tympanum, and that no other treatment is required, provided this remedy is persistently used, is certainly not confirmed by my experience. Very often a chronic suppurative otitis refuses to yield to boracic acid, and a careful examination of the ear in these cases almost always reveals a number of granulations springing from the walls of the tympanum. When this condition exists, I stop the use of boracic acid and apply a solution of bichromate of potash to the troublesome products, using a small tuft of cotton on a cotton-holder to make the application. Touching the parts five or six times, allowing a day or two to elapse between the applications, is usually all that is required. Then, go on with the treatment as before, and the patient makes a rapid recovery. If the bichromate is used in excess, or too often applied, it may irritate the healthy tissues somewhat ; still, I have never seen it produce any serious results.

In the case here reported, it seemed to have no effect upon the m. t. with which it came in contact, yet caused the polypus to shrivel and die. I believe its effect upon these

growths may be almost called "specific,"—homœopathic—for I have often noticed that when only a small portion of the polypus is touched with the solution, as in this case, the whole tumor shrinks, disappears, and rarely returns. This I have most frequently observed when treating mucous polypi of the nose. When the drug is applied for a number of consecutive days to the nasal mucous membrane, it causes a very thick, firm, whitish deposit to form, which so closely resembles a mucous polypus that it might readily be mistaken for one.

I would not be understood as advocating the use of any means other than operative when pus is rapidly collecting in the ear in consequence of the external auditory canal being obstructed by a large polypus. Of course in such a case time is precious, and instrumental interference demanded. This complication, though, is seldom encountered.

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GLAUCOMA FULMINANS.—A CASE.—DESTRUCTION OF THE RIGHT EYE FOLLOWED, IN FOUR YEARS, BY LOSS OF THE LEFT.

BY JAS. A. CAMPBELL, M.D., ST. LOUIS.

Glaucoma at best is serious enough, but how helpless and hopeless we are in the presence of this disease when it assumes its most malignant phase, the terrible glaucoma fulminans.

Presuming that the majority of the readers of this journal are specialists in its fullest sense, it seems to me that any attempt at definitions or text-book descriptions are not only unnecessary, but would be in bad taste, therefore I shall content myself by presenting the clinical history of a case which is interesting from its nature as well as by reason of its rarity ; for glaucoma fulminans is in reality a rarity.

In January, 1880, Mrs. Libby T., of Terre Haute, Ind., was brought to me by her father, a well-known physician of that city, presenting in brief the following history :

A few years before, she had suffered much from facial neuralgia from bad teeth. After these were extracted she had no farther trouble until about a year and a half back ; she then began to have attacks of severe pain, commencing in the center of the right eyebrow, extending from there into and about the right eye. These attacks came on at irregular intervals "every few weeks," lasting only about five or six hours. In the intervals she had no especial trouble. In November, 1879, she was suddenly seized by a very severe paroxysm of pain in the right eye, extending to the

side of the nose. From the beginning of this attack the vision of the right eye was immediately and totally lost. This was followed by high fever and general prostration, as well as continued agonizing pain in the lost eye. This state of affairs kept up for about ten weeks, when she was brought to me.

My examination showed $V=0$. Not the faintest perception of light remained. $T+2$. Pupil widely dilated, oval in shape. Media murky. Cornea not sensitive to touch. The o.d., strange to say, was not cupped, but appeared swollen and red. Veins full and turgid. Slight arterial pulsation. No evidences of intra-ocular hemorrhage.

As there was but a small rim of the iris visible, and it was evident that a degenerative process had begun, I did not think best to experiment with either iridectomy or sclerotomy; and as the pain present was very severe and the eye was hopelessly lost, enucleation was recommended as the most certain and speedy relief. This seemed to them rather too heroic, and they hesitated to accept my suggestion; so they returned home to think about it.

In the following May, while attending the Indiana Institute of Homœopathy, the case was again presented to me, as well as to Dr. Breyfogle, of Louisville, Ky. The process of glaucomatous degeneration had steadily gone on. The pains at times were almost unbearable. They had been to Cincinnati to Drs. Williams, Howe, and others, who had confirmed the diagnosis. Still they hesitated to accept the proposed treatment. She went on enduring untold and increasing agony, upon which no internal remedy or eserine-sulph., etc., seemed to have any effect, until in August, when, fearing that her reason would become unbalanced, they came to me again, and enucleation of the right eye was performed.

At this time the eye-ball was about one-third less in size than its fellow. $T+3$. Only faintest suggestion of an iris was visible, and the posterior sclera was irregular in contour.

The enucleation was followed by complete and immediate relief from all of the maddening pains she had endured so long. She made an excellent recovery. An artificial eye was fitted, and she went on her way rejoicing.

The enucleated eye was placed in Müller's solution for some weeks, and then examined. On the posterior segment

of the ball, at the points of entrance and exit of the blood-vessels, were small, irregular enlargements, like small knobbed elevations. The posterior half of the eyeball was also irregular in contour, made so by these wavy elevations. Sections through these spots showed them to be dense and firm. The posterior sclera was thicker and denser than normal; and there was a general obliteration, atheromatous in appearance, of all the blood-vessels in this region. It was from these enlargements, as well as from the increasing density of the sclera, and consequent pressure on the ciliary nerves, that the severe pain came. This being so, any form of operation, other than the removal of the atrophied and degenerated eyeball, would have been worse than useless.

As the years went by, an occasional letter informed me of her excellent health and freedom from pains or annoyance. She studied painting in New York, and with great ability and increasing success followed it for her life work. But the bright dreams of future peace were doomed to a bitter and sudden ending, for in December, 1883, just four years from her first attack, a letter from her father came to me saying that his daughter had been in most excellent condition up to about three weeks previous to his writing, when, after a cold, which had lasted for some weeks, she was awakened one morning by a very severe pain in the left eye and down the side of the nose, and from that time on not a vestige of vision was present. They had called in local aid, but the case was pronounced hopeless from the beginning. The pains kept very intense for two or three weeks, but had begun to diminish somewhat at the time he wrote.

At his earnest solicitation I went to Terre Haute, and found my worst fears confirmed. V. lost; no perception of light present, even when concentrated in the widely dilated pupil with a lens. T+2. On the cornea were numerous little blisters, which, on inquiry, were probably the result of some local remedies used to mitigate the pains. They were sufficient to prevent a view of the fundus, however.

The prognosis was naturally hopeless, as far as any restoration of vision was concerned, but as the violence of the attack seemed to have spent its fury, as a last resort sclerotomy was suggested as a possible prevention of the severe pains, which would probably

come up in the future, as had been the case in the other eye. With the assistance of her father and Dr. Waters, of Terre Haute, an upward sclerotomy was made. Fearing intraocular hemorrhage, the section was not completed, but a small bridge was left, after the method of Wecker. Some relief followed, but it was only temporary, for during the months that followed she suffered much with the eye. She refused all farther operative interference, and suffered on in the despair of hopeless darkness. Gradually the pains lessened, and the last I heard of her she was in comparative comfort.

It will be noticed that the changes seen in the enucleated eye corresponded to the conditions found by Latteux, and also by Hatch, as related by Galezowski, in his description of his new operation for glaucoma, "posterior-sclerotomy." This operation was devised by him for simple glaucoma, owing to the well-known uncertainty of either myotics, iridectomy, or sclerotomy. In simple glaucoma it may be of service, but from the intensity of the attack, and from the rapidity of the degenerative process set up in the case here presented, it would be hard for me to believe that any form or operation, other than enucleation, would have been of any use.

DANGEROUS HEMORRHAGE FOLLOWING TONSILLOTOMY.*

BY F. PARK LEWIS, M.D., BUFFALO, N. Y.

The subject of the case I shall attempt to describe wrote to me during his convalescence as follows :

“I see my case in your medical journals thus : G. H—, aged 48. Red-faced Englishman, full habit, tonsillotomy performed, violent hemorrhage set in ; continued over seventeen hours ; his English visage is reduced to the pallor of a down-east Yankee.”

Abscission of the tonsils is an operation apparently so simple, and is so rarely followed by serious results—either direct or remote—that it may be worth while to place on record any case in which a deviation from the normal has been observed, more especially if it serve to suggest a possible source of danger in future cases, and to indicate the peculiar conditions in which special care may be necessary.

My case was one of simple tonsillar hypertrophy, with the usual annoying symptoms, that is, sense of fullness in the throat, some thickness of the voice in speaking, with difficulty in taking the higher notes in singing ; an irritation in the throat, necessitating a frequent effort to clear it, and there was slight pharyngeal catarrh. The tonsils were each the size, perhaps, of half a walnut : the right one firm and rather pale, the left one softer in consistency, spongy, dark red, and showed several tortuous congested veins upon the surface. The uvula was elongated.

The operation was the usual one. After the application of cocaine the right tonsil was excised with the Mathieu's tonsilotome. There was absolutely no bleeding—certainly not more

* Read before the Homeo. Med. Soc. of the State of New York.

than a few drops of blood. The cut surface of the gland was grayish-white, and cut almost like cartilage. The left tonsil was so soft that it was difficult to catch and hold it, the fork of the instrument almost immediately slipping out again.

The piece excised was only about a quarter of the entire gland, and had a red, beefy look. A little oozing followed, but no bleeding of consequence. The end of the uvula was then excised, the tip being held by forceps, and the cut being upward and backward. There was slight bleeding at this time from the left tonsil, but not enough to occasion the least concern, and the patient was left in the ante-room while my morning work was continued. At the end of an hour the oozing had not yet stopped, and he remained in my office the entire morning, frequently expectorating a little blood. By one o'clock the bleeding had apparently ceased, and Mr. H— started for the depot, to take the train for his home, a distance of about an hour's ride.

While at my luncheon, however, I had word that he had returned, and found him spitting mouthfuls of blood. In the left tonsil was apparently a venous throbbing, and blood exuded from the whole cut surface. Active measures were immediately instituted. The patient was given ice to suck, but without effect. I then applied a solution of persulphate of iron, which temporarily stopped the bleeding, only to have the blood appear in the cut surface of the right tonsil.

This was treated in the same manner, when the uvula began to drip blood, and before that could be controlled the oozing reappeared in the left tonsil.

Without going into details, let it suffice to say that every method with which I am familiar and which was accessible—including persulphate of iron, tannic acid, nitrate of silver, etc., besides rest and the apparently indicated internal remedy—was tried that afternoon before the hemorrhage was subdued. He was of course kept quiet and recumbent during the time.

By six o'clock the bleeding had almost entirely ceased, and it seemed imperative that he should return home. On the train the bleeding recommenced and lasted until a quarter past four in the morning, notwithstanding the efforts made during the time by his family physician to

control it. He then vomited a quantity of clotted blood which had gradually trickled down from his throat into the stomach. During the seventeen hours of bleeding the loss of blood could not have been less than four quarts.

An illness of several weeks followed, and after convalescence an examination showed his throat to be completely healed. There was nothing unusual in the result, except the dangerous hemorrhage through which he had passed.

Hemorrhage of this character is certainly infrequent. Sajous says that he has been fortunate enough to see but two cases, and that a dangerous hemorrhage does not occur one time in a thousand. Sir Morell Mackenzie writes that he has only *once* met with such a case.

In the cases reported by Sajous, the tonsils were hard and fibrous. The bleeding in the case which I report began in the softened tonsil and only ultimately reached the harder one.

The explanation I believe to be as follows: In the first place the full habit of my patient tended to produce bleeding on slight provocation, and hemorrhage once begun would not be easily controlled.

The cocaine employed temporarily constricted all the tonsillary vessels, and the primary effect was followed by vaso-motor paresis, leaving the vessels lax and patulous.

In the case of Dr. Sajous's patient the hardened condition of the tonsil might have prevented the constriction of the vessels, thus causing hemorrhage, while in mine the soft condition, leaving them atonic, would produce the same result. Now when bleeding had gotten well established a kind of syphon action seemed to be produced, and the blood was drawn to all the cut surfaces. The heart's action was thereby increased and the condition consequently aggravated.

The points which I wish to make in this paper are simply these: That in estimating the danger in abscission of the tonsils we must bear in mind:

First. The physical condition of the patient.

Second. Any unusual degree of consistency of the tonsil.

Third. The possible effect of cocaine as an anæsthetic.

RAPID LOSS OF HEARING CURED BY GALVANIC CURRENT.

BY W. A. PHILLIPS, M.D., CLEVELAND, OHIO.

Miss F. H., æt. 17, a healthy, robust girl, living in the country, left the house one Sunday morning in August in a fit of anger, walked out into a field two or three hundred yards' distance, and was taken suddenly ill. The first symptom was dizziness, followed in about ten minutes by nausea and vomiting. She was so weak that she could not stand, sat down upon the ground, and in a few minutes fainted. She remained lying on the ground in a state of total unconsciousness from about 9.30 A.M. until 4 A.M. of the following morning—*more than eighteen hours!* At this time she regained consciousness, picked herself up, and started for home. When half-way to the house she was met by her father, who with others had been searching for her during the night, and was assisted to bed. She vomited more or less during Monday, had severe headache, tinnitus aurium, but had no convulsions, delirium, nor, so far as she recollects, any noticeable disturbance of vision. On Monday the hearing of the left ear failed, and in two days more was entirely gone. On the following Wednesday the severity of the pain in the "center of the head," as she worded it, was somewhat relieved, and she was able to sit up. Whether this amelioration occurred in consequence of the "regular" prescription she had been taking, or whether nature herself had taken a turn for the better, we will leave for the reader to judge. The hearing, however, on Tuesday morning became impaired in the other ear, and in three days thereafter was also totally lost. For the following two or three weeks there were great depression and headache at night—during the day the pain was slight. There was not at any time any staggering or halting of the gait, nor so far as she knew, or so far as could be perceived by others, any impair-

ment of the facial or other nerves. During the first two weeks of the month of November she came to the city and was under the care of an aurist of good repute for a couple of weeks, who prescribed moderate doses of iodide of potash. For about one week previous to the electrical treatment she took Gelsem. 2d, also without benefit.

Nov. 26 I gave the patient a hurried sitting for the application of electricity. I use the word "hurried" advisedly, as I thought to apply the current the next day, when more at leisure, in a more promising manner. At 4 P.M. I placed the electrodes over each ear, without filling either auditory canal with a saline solution, and without passing a sponge into the orifice of the ear. The sponges used were large enough to nearly cover the auricles. I reversed the poles three times during a sitting of five minutes, using two cells of a gravity battery of low tension. The galvanic current alone was applied. I voluntarily plead guilty of applying this one treatment in a manner so devoid of all authority, but with the mental reservation that I fully intended to apply the current the next day *secundem artem*. An unexpected justification, however, of the method came through the result.

Two hours subsequent to the sitting she noticed that her headache was gone; and in a few minutes was delighted to observe that she could hear conversation. I saw her again the second day after the current was applied, and the test showed the hearing to be $\frac{20}{36}$ for both high and low tones—conversation, of course, being easily heard. I concluded at once to persist in the method, and applied the current in the same way five minutes a day for two weeks; at the expiration of which time the hearing was very nearly perfect in both ears. At this time the patient returned home. The hearing came gradually in the ear last affected. No tinnitus aurium developed in either ear after the hearing was restored, *i. e.*, during the time of treatment, and the headache was entirely relieved.

REMARKS.

The above case is clearly one of active cerebral congestion, induced by the fit of anger. Whether the heat of the morning had anything more to do with the attack than merely to favor the congestion already produced, is uncertain; yet

it is to be observed that the symptoms would have pointed to sunstroke had not the mental emotion excluded heat as the primary cause. As the cerebral changes, however, are substantially the same whether due to the one cause or the other, there seems to be nothing gained in attempting to analyze the two causes in the light of the results that followed. There was no history of previous ear disease, and no deviation from the normal condition of the drum membranes or in the Eustachian tubes so far as I could discover by the most careful examination. A mild form of post-nasal and pharyngeal catarrh existed, but there was no evidence that the ears had ever been invaded by it.

The first point of peculiar interest in the above case lies in the circumstance that, with a degree of congestion sufficient to produce a comatose state lasting for over eighteen hours, no more serious consequences should have resulted than the symptoms above noted. It does not seem at all probable that hemorrhagic extravasation occurred, or even a fibrinous exudation, otherwise there would almost certainly have been a greater number of symptoms and a far less speedy recovery. That a serous exudation was produced which extended to the labyrinth, causing the deafness, is unquestionably true, but appears hardly sufficient to explain the long-continued and profound syncope, unaccompanied, or rather not followed, by either mental disturbance, convulsions, or impairment of vision, which are so invariably attendant symptoms of long-continued and severe coma. The congestive tract was evidently comparatively circumscribed, the labyrinthine congestion being a secondary affair, as shown by the fact that the loss of hearing was not immediate.

The second point of interest lies in the fact of her recovery at all, especially in the manner and rapidity of the same. That the exudation, or congestion, either or both, did not extend to the cerebellum, appears to be evinced by the fact that convulsions did not occur, nor was the facial nerve affected. These two facts are not necessarily conclusive, but render it at least very probable. Now, as the cord of the auditory nerve

from its origin to its expansion in the labyrinth is not intimately connected with the brain, it is not probable that the cerebral or meningeal exudation was sufficient to compress it along this part of it, and as there was no loss of equilibrium of the body, except through weakness and syncope, it shows that the semi-circular canals were slightly, if at all, implicated. The labyrinthine congestion, therefore, must have been confined to the cochlear portion. This is further evident from the direction of the electric current, which, on the ground that it always takes the shortest route through conducting substances, could not have passed through the origin of the auditory nerve but only along a comparatively short part of its cord. The cochlear exudation had very likely been absorbed; the nerve fibers were relieved of their pressure, and only required the stimulus of an electric current to restore their function. The vaso-motor nerves were also stimulated, thus relieving the remaining congestion, and hence the immediate relief from the headache.

RETINOSCOPY,—THE SHADOW TEST.

BY SAYER HASBROUCK, M.D., PROVIDENCE, R. I.

Ophthalmologists in the past have generally been ready to adopt almost every new idea or suggestion that had any bearing on the diagnosis or treatment of eyes. There have no doubt been many suggestions and devices offered to aid them in the Diagnosis of Refraction that have not stood the test of time, and it is probably on this account that the older and more conservative of our ranks have hesitated long in making more general and practical application of Retinoscopy or The Shadow Test. To those doubting ones I can simply say that it is now over fifteen years since Cuignet of Lille first described it under the head of Kerat-
oscopy; but little attention was paid to him, and it was not until 1878, that one of his pupils, Dr. Mengin, introduced the practice of this method at Galezowski's clinic in Paris. During the next two or three years great interest was shown in it by such men as Parent, who demonstrated its optical basis, and in 1881 he visited London and demonstrated its principles to the Staff of the Royal London Ophthalmic (Moorfields) Hospital, where it was quickly appreciated and from whence its popularity rapidly spread over the United Kingdom. I was House Surgeon at St. Mark's Hospital, Dublin, at about this time, under Drs. Story and Benson, and I well remember the interest taken in its introduction and application; how I sat for hours with a trial frame on, having my refraction changed by lenses and corrected by neutralizing ones under the direction of one using the shadow test. And I will say right here that this is the proper way to learn how to test refraction by retinoscopy.

As it is my intention to make this paper, as far as possible, a purely practical one, if I can give you some hints that will make its application easier, or encourage the doubting ones in its use, I will have fulfilled my mission. And it is my belief that the reason why it has not been more universally adopted is the fact that it requires a good deal of practice, and is not as easy to become proficient in, as its earlier advocates would have us believe. In theory I grant you it is simple enough to tell one to throw a light into the patient's eye and move it back and forth; and when he says he sees a shadow moving *with* the movements of his mirror, to say that it is myopia; and when *against* the movements of the mirror, that it is hyperopia; and if the shadows of the different meridians are different, that it is astigmatism. This is of but little value to him, as the acute observer can almost tell you that, in nine cases out of ten, by observing the efforts and methods used by the patient in seeing; the myope squints up his eyes; the hyperope jumps at a conclusion at the first glance, and then is not willing to swear to it at the next; true, the astigmatic one is much like this, but he, at the same time, cocks his head over to one side to be sure, if you press him hard for an answer.

It is not my intention to go into the mathematical or optical reasons for the correctness of the shadow tests, as most of you are either familiar with them already, or, if not, can quickly post yourselves in such works as Landolt, Morton, Hartridge, or Burnett on Astigmatism; or in almost any modern text-book treating of Eye Diseases you will find all you want. And, at the same time, I will leave to others the discussion as to whether it is well named or not,—I have always known it as Retinoscopy, and as yet I have seen no better name unless it may be "The Shadow Test"; nor have I any desire to attract your attention to any unique or complicated method of its application, easy and familiar to the one describing them, no doubt, but only tending to confuse the beginner, or one but slightly informed on the subject. I am writing this at the suggestion

and wish of many of my friends, who knew that I was a firm believer in its principles, and that I received my knowledge of it from daily contact for nearly two years with such men as Drs. Story and Benson of Dublin, Drs. Morton, Lang, Gunn and Hartridge of London, and that I remember distinctly introducing Dr. Barrett for the first time to its mysteries. My friends wished to know how I worked it practically, and though I would much rather sit down in front of a patient with each of you, for an hour or two, than to attempt its description by pen, still I will try to fulfill my mission and begin with you at the beginning.

First, be sure that you are perfectly familiar with its application before you base any of your opinions on the results of its practice ; and it is only after a good deal of patient practice that you will be able to do so. One of the best ways that I know of, to acquire the necessary practice, is to take a person whose refraction is practically normal, instill cocaine into his eyes for the purpose of dilating his pupil, and, in conjunction with a friend, whose duty it will be to place various lenses in front of his eyes, to alter his refraction at will, and by the aid of such neutralizing lenses, as the results of your examination may suggest, try to correct it.

Having thus familiarized yourself, we will suppose a case, whose vision you have just tested by Snellen's test types. After taking a record of this, you place your patient in front of the light, in the dark room, so that the eyes are in the shade ; if necessary, shade them. In children, my habit has been to place the light behind and just over their heads : in older ones at the side, and a little back answers well enough. The next, and one of the most important steps is your own position. This should be at not less than four feet distant from, and directly in front of, the patient.

Now comes the question as to where your patient should fix his eyes. If under the influence of a mydriatic, directly at the hole in your mirror will allow you to estimate your results at the macula. But in the majority of cases, you will be working without that aid.

The habit of most observers has been, I think, to have the patient fix his eyes to the right or left, in order that you might work over the region of the disc, arguing that the reflected light would in this region affect the size of the pupil but little. This is true, but at the same time you here find a stumbling-block in the way of a correct diagnosis. The disc, as you know, is often cupped, and instead of learning the refraction of the surface of the retina, you will demonstrate the refraction of the bottom of the cup. At other times, it may be raised, as in a choked disc, and you will then have the refraction of the surface of the swelling:—Hence my habit has been for years to have my patient fix his eyes on my forehead, directly over the reflected light, and you will find that in this position the light will have but little influence on the size of the pupil, and the difference between this region and the macula is almost nothing.

In the *N.E. Medical Gazette* for November, Dr. John H. Payne called attention to this method in a most able and interesting article, well worthy of your attention. He was then of the belief that it was original with himself, but he will find under the section of "Method of Examination" in Dr. Jackson's article on Retinoscopy, published in the *Am. Jour. of Med. Science*, April, 1885, these words, "*he is told to look at the observer's forehead;*" and I am also sure that it was not original with Jackson, as I knew of it a long time previous. In the *Ophthalmic Review's* review of Morton and Barrett's article, "A Clinical Investigation of the Merits of Various Methods of Practicing Retinoscopy," published in the *British Medical Journal* June 16, 1886, the reviewer calls especial attention to this point, and I believe for exact diagnosis it is one of the most important points of this method.

Having your patient in position, you proceed to reflect the light into his eyes by aid of your ophthalmoscopic mirror. As the movement of the mirror subtends the various meridians of the pupillary area, you will notice a shadow either moving *with* or *against* the movement of your mir-

ror; if *against*, place a convex lens, of not more than 1. D., before the patient's eye, and again try the test, changing your lens to either a stronger or a weaker one until you find the lens that just reverses the shadow; as you get near this point, there should not be a change of over 0.25 D. in the strength of your lens, as the final result will not be much more than this difference from the real refraction of the eye. If the case is one of simple myopia or hyperopia, you again place your patient in position for Snellen's Test and see how near the full correction your patient is willing to wear, for in the lens you order, you will have to bear in mind, by this test as well as by any other, the age of your patient and the power of the ciliary muscle; as I, for one, have little sympathy with those observers who compel their patients to wear the correction found under atropia, as the every-day demands on our eyes are such that we can much easier spare the time for a change of glasses than to suffer days and weeks in accustoming ourselves to something that the ciliary muscle is little willing to bear. True, in cases of hyperopia you may have to make a change or two before your patient receives the lens that will be most satisfactory, but when you have reached that point, with a reasonable patient, he will readily appreciate your services; and by any method it will be impossible for you to satisfy the unreasonable.

So far, we have considered the regular forms of refraction, but the irregular form known as astigmatism is the one in which retinoscopy reaps its richest laurels. Proceed as before, and if after placing a lens of 1. D. before the patient's eyes, you find in one meridian the shadow moves *with* and in the other *against* the movements of the mirror, you may be sure that astigmatism complicates the case; you will then reduce the lens until the shadow is the same in every meridian. I am speaking now of simple and compound cases. Mixed astigmatism will be considered later.

Having thus found the spherical correction, if there is any, you will then increase your lens until you have corrected the meridian of greatest refraction, and having found

and noted both of these, you will then test your patient as before by Snellen's test. If the amount of astigmatism is not high, you will be able to determine this result by spherical lenses, but if high, the use of cylindrical lenses have given me the best satisfaction.

In cases of mixed astigmatism you will note that the shadow moves in one meridian *with* the mirror and in the other *against* the mirror's movements. If the refraction of each meridian is of a low degree, you will be able to correct it by plus and minus spherical lenses, but if high, my habit has been to correct the meridian of the least refraction by a spherical lens, and leave that in the frame and proceed to the correction of the other meridians by a cylindrical lens.

Thus far, we have considered the application of the theory, but in practice is it satisfactory? And to this I can say, after seven years of experience, that I am more and more pleased with it.

First. Are the results accurate?

Second. Does it save the patient the inconvenience of mydriatics?

Third. Are we better able to prescribe for cases of spasm?

Fourth. Has it any advantages over other means of testing refraction?

In answer to the first question I will say that, if all the principles of its application are *carefully* followed out, I believe that you will be able to discover, in the great majority of cases, the real refraction of the eye, to within 0.25 D. or 0.50 D., and your experience in observing the shadow will soon put you in a position where you will be able to drop the right lens into the trial frame, when you make your Snellen's test, and one that you can not change to the satisfaction of the patient. I make use of this method in every case, but in cases of middle-aged patients, in which there is but little evidence of refractive irritation, my examination is simply made in an off-hand manner to determine whether there is hyperopia, myopia, or astigmatism, basing the test with lenses on the result found.

In all cases of astigmatism, I work the result out carefully, and rarely do I find it unsatisfactory.

In young people I never begin the test with lenses until I have satisfied myself as to the kind and amount of their refraction by retinoscopy.

While writing this I have been interrupted by a telephone call, asking me to send the formula for the L. eye of a pair of glasses, ordered April 1, 1885: looking it up I see I have this record.

"Has been wearing R. & L. —1.75 D^s. but is not satisfied with the way he sees." By retinoscopy without a mydriatic I find:

$$\text{R. — 1.25 D}^s. \bigcirc \text{ — 2 D}^c. \text{ ax. } 180^\circ = \frac{5}{5}.$$

$$\text{L. — 1.50 D}^s. \bigcirc \text{ — 0.50 D}^c. \text{ ax. } 180^\circ = \frac{5}{5}.$$

and Jaeger No. 1, comfortably."

By the subjection test, I was not able to change this, and from that day to this he has had perfectly satisfactory use of his eyes; and I could repeat this list with a hundred cases that have likewise stood the test of time.

It has been said by some that it shows astigmatism in many cases in which the neutralizing lenses make distant vision worse, and hurt the eyes badly. My answer to this is that the chances are that you have not conducted your examination carefully enough. Many times I have thought that I had everything all right, and on testing the vision subjectively, by lenses,—which I insist must be the final test,—I could not make the results hitch; but on re-examining the case in the dark room I would generally discover my error. It is a test that must be worked carefully, and not hastily, if you wish for accurate results.

To the second question, I will quote from Dr. A. R. Baker's interesting paper on Retinoscopy, read before the section on Ophthalmology of the Ninth International Congress and published in the *Am. Jour. of Ophthal.*, October, 1887: "Although it is necessary to use atropia occasionally to paralyze the accommodation, especially where there is spasm of the ciliary muscle, I find that since I have be-

come accustomed to using retinoscopy, it is not necessary to use atropia once, where I formerly used it ten times." This is my experience, and I would much rather trust my judgment in every case based on the results of retinoscopy, than by the subjective use of lenses.

To the third question I will begin by stating that you will not find one-half the cases of spasm that it has been your habit to diagnose. Still such cases exist, and I know of no more satisfactory way of diagnosing them than by retinoscopy. Generally speaking, it is much more satisfactory to use mydriatics, as eyes like these do not stand bright lights well, and the pupil is apt to be unsatisfactory for a careful test. But I believe that without the mydriatic you can come very near the actual refraction in the majority of cases; and with the mydriatic (I would state here that I believe homatropine with cocaine to be all that is necessary) you can diagnose it without trouble. Only yesterday I had a case in which the patient was wearing R. + 1.25 D.^c, ax. 90°; L. + 1.50 D.^c, ax. 90°, but she said she couldn't get any satisfactory use of her eyes, and that if they were to give her as much trouble as they had she would about as soon have none. By retinoscopy, without a mydriatic, I found the horizontal meridian to be +2.25 D.^s, and the perpendicular meridian +5.D.^s, but I could not combine any combination of lenses that would give her over $\frac{5}{15}$ Snellen s. I then used homatropine and cocaine every fifteen minutes for an hour, and retinoscopy gave me practically the same result, and with

$$\text{R.} + 2.50 \text{ D.}^s, \text{ } \bigcirc + 2.50 \text{ D.}^c, \text{ ax. } 90^\circ = \frac{5}{7}$$

$$\text{L.} + 2.50 \text{ D.}^s, \text{ } \bigcirc + 2.50 \text{ D.}^c, \text{ ax. } 75^\circ = \frac{5}{7}$$

and she said that this combination felt comfortable and wanted me to order them at once; but, as I said before, it is not my custom to order glasses under a mydriatic, so she is to give her eyes perfect rest for three days, absolutely no near work, and at the end of that time I will test her again and see what my result may be.* The only way that any

* I have to-day ordered R. and L. + 1.50 D.^s with the above cylinders, and she has R. and L. Distant Vision $\frac{5}{7}$ and Jaeger No. 1 good.

one could prove to you that retinoscopy is the test *par excellence*, as I believe it is in cases of spasm, would be to work out a few cases with you, and then I am sure that you would use no other with confidence. I have never seen a case in which a convex lens would not change the shadow, as some claim in cases of spasm, and if you will follow the case up with mydriatics you will find you have a much higher case of hyperopia than you expected.

In answer to the fourth question I will again quote from Dr. Baker: "A retinoscopy examination is more easily performed than an ophthalmoscopic one by the indirect method. It is more accurate as a means of correcting errors of refraction than by the upright images, and the examination is made as quickly as with the optometer.

"We are enabled to examine cases and correct the error of refraction without the assistance of the patient,—a very important matter with children, ignorant people, and those of feeble intellects. We are enabled by means of retinoscopy to fit spectacles accurately in cases of amblyopia as the result of the excessive use of tobacco, alcohol, etc., and especially as the result of squint. In cases of nystagmus, in which it is impossible to fix the eye, its use is invaluable."

Little value should be placed upon the brightness or rapidity of the shadow's movements, though they will all eventually have their value with the acute observer, who will formulate rules of his own to govern his work. Its place as an accurate test will always remain hand in hand with the trial lenses, and for those who are so constituted that they have a natural inaptitude for the work of replacing the lens in the trial frame, I would recommend some such device as that recommended by Dr. Burnett, or the one recommended by Dr. Humphry Haines in the *Ophthalmic Review*, Oct., 1886, which has a series of lenses placed in a disc just in front of the patient's eye. The disc can be moved by the patient from right to left or *vice versa*, so that you may have either a stronger or weaker lens as you wish.

To the off-hand statements of such men as the late

lamented Dr. Loring, in his valuable work on the Ophthalmoscope, and the flippant remarks of Prof. Hirschberg, who once said, "Oh, that is a *lazy English method*, and don't amount to much," and the sarcastic remarks of Fox and Gould in their little work on Eye Diseases, I do not hesitate to offer the theoretical and practical facts of a Landolt and Morton to your unbiassed judgment.

As to whether a plane or concave mirror should be used I have little to say. No doubt the greater distance at which a plane mirror may be used allows of greater accuracy, but to the skilled observer the concave mirror, combined with his judgment,—gained by experience,—will give him satisfactory results. I at times use both. I never pick up a plane mirror without thinking of the way Dr. Story, who is quoted as an authority on retinoscopy with the plane mirror, became an advocate of it in preference to the concave. He was then using a Landolt's ophthalmoscope with reversible mirrors, plane on one side and concave on the other. The concave became cracked and practically useless, and he was forced to make use of the plane one, and in comparing results of retinoscopy cases with Dr. Benson and myself he thought he was able to get a little more accurate results, and after careful investigation of the subject he transmitted his thoughts to the *Ophthalmic Review*.

To you who have not used it I can simply say, perfect yourself in its use, and I am sure you will never regret it.

To those who have so far but dabbled in its use, I can simply offer the good advice, PERFECT YOURSELVES and you will find the time well spent.

Cases of conical cornea are diagnosed by the peculiar concaving of the edge of the shadow as it approaches the center of the cornea; this you will quickly learn to recognize, and you will thus frequently be able to account for apparent cases of amblyopia when no sufficient reason seems to exist, and also to discover very slight cases of this trouble. And it is only by this means, I think, that cases of so-called meridional astigmatism, as described by Jackson in the

Trans. of the Am. Ophth. Society at their 24th annual meeting, may be discovered.

In conclusion :

1st. The observer must always be seated at the same distance from the patient, viz., about four feet distant if a concave mirror is used ; if a plane, much further away, even to ten or twelve feet will give perhaps more accurate results.

2d. If the shadow moves *with* the mirror the refraction is myopic.

3d. If against the mirror, we may have a case of emmetropia, weak myopia, or hyperopia. This a weak convex lens will soon demonstrate.

4th. Shadows of the plain mirror move directly opposite to that named for the concave.

5th. The shadow travels along and indicates the error of refraction in that meridian which is at *right angles* to the direction of the edge of the shadow.

THE THERAPEUTIC VALUE OF GELSEMIUM IN ASTIGMATISM.

BY A. C. PETERSON, M.D., O. ET A. CHIR., SAN FRANCISCO, CAL.

Some time since, one of our city's well-known opticians essayed the information that he could determine any case of astigmatism and correct the same within ten minutes. He delivers himself of this statement from behind an elaborate set of apparatus of his own invention, that seemed to bear out the assertion of the ingenious inventor, as far as the element of speed, so essential to a fast express train, is concerned, but utterly unable to meet or make good the latter's promise of comfort and safety. A set of nickel-plated machinery on a plush mat, enveloped in a cloud of mystery, and the whole presided over by an enterprising deity, glib of tongue and clothed with profound ignorance of the anatomy and physiology of the eye, nimbly manipulating a set of screws and glasses, carries a moral effect that rarely fails to fascinate the uninitiated astigmatic; in the end is involved another recruit to the rapidly multiplying army of sad-eyed martyrs.

There are many miserable heads and wretched eyes, patrons of the ten-minute route, while any complaint is met with a complacent smile and the information that it's all right, as astigmatic glasses always hurt for a while, before settling down to quiet business methods.

Every oculist well knows that after an abundance of time, patience, and corroborative tests have determined apparently the proper correction of astigmatism and the prescription "accurately compounded," the glasses are not a

success, or for a few days they do good service, when there comes a time to the wearer of a sense of discomfort in the eyes, the sensation extending to the head, a suggestion of the original ills. The glasses are removed and energetically polished, and, upon their reapplication, they seem to fulfill the requirements, but gradually there comes a time when any amount of polishing avails nothing—in short, there is a restoration of the primal ills and condition.

What circumstance accounts for these failures? What is the reason? The mechanical considerations have all been carefully complied with, but something is at fault, but it is not evident where it lies, especially as there are no discoverable signs of discontent among the sympathetic centers distributed to the various tissues and organs.

About eight years ago, I* had occasion, before fitting glasses, to prescribe Gelsemium in a case of simple astigmatism for the relief of the occipital discomfort and heaviness. After ten days' use of this remedy, there was a surprising change in the state of things; the headaches and heaviness had not only vanished, but the degree of refraction was markedly changed from that of the initial test. Atropine was dispensed with and glasses prescribed in conformity to the change noted, and the resulting success justified the venture. The patient in this first instance was about ten years of age, but I do not hesitate to adopt the same course with those well advanced.

Gelsemium in its physiological action is a marked depressent and paralyzing agent. The tone of the blood-vessels, both venous and arterial, is lowered, and the resulting congestive condition is a prominent feature, very similar to that existing in eyes whose refraction departs from the normal to an appreciable extent; either from the passive weakness in the myope to allow the image to pass backward to rest upon a retrograded retina; or from the active accommodative efforts of the hyperope to drag a retiring image forward to repose upon an advanced retina. The paralyzing effects are exerted upon the nerves and muscles of the entire animal organization. The ocular muscles receive

marked attention, and, suffering from the same, exhibit therefrom a derangement of that nicety of balance that preserves the symmetry of binocular movement, and, penetrating deeper and reaching within the globe, there is, to a degree more or less complete, a paralysis of the muscle of accommodation.

A glance at the provings of Gelsemium furnishes an abundance of ocular symptoms, which, combined with its various phases of headaches and neuralgias, give a good picture of asthenopia, both muscular and accommodative. Whenever, therefore, a diagnosis of astigmatism is made out, I test to find the correction as it appears at the time; this being noted, I then prescribe Gelsemium, usually the second or third decimal, to be taken every two hours, unless the patient's susceptibility is too acute, in which case I stop the remedy for a day or two or lengthen the intervals; beside the remedy as much rest as may be obtainable is enjoined. Examinations are made every three or four days, during the treatment, and in a period usually of from ten days to two weeks the eyes conclude to tell the same story thereafter. I then, in about a week or less, make a thorough test, and finding no deviation from the previous examination, I order a prescription accordingly. I have not found it necessary to subject any patient to the annoyance of atropine for at least six years past, and, on the whole, no more time is required, and the inconvenience is reduced to a minimum.

Among a number of cases on record, I will cite several illustrative of this mode of treatment, pure and simple:

About the middle of May, 1886, a clergyman's wife applied for treatment for weak and irritable eyes. Examination revealed astigmatism and myopia in both eyes. Gelsemium 2x was given and continued for two weeks, at the end of which time the right had developed $\frac{2}{2}^0$ with -20 , while the left eye required for the same vision $-20^s \text{C} -60^c$, ax. 135° . These glasses were prescribed May 29. A letter from her home in San Bernardino, a year afterward, announced that the eyes were perfectly comfortable with the glasses.

March 1, 1887, the daughter of a prominent merchant came

with symptoms of asthenopia with extreme irritability of the eyes, and on attempting to read five minutes, the eyes became markedly congested and very painful. Beside the visible signs of catarrhal conjunctivitis and some retinal congestion, hyperopia and astigmatism were found in the left eye, while in the right, vision was normal. The patient, endowed with a nervous, high-strung nature, was not a promising subject for Gelsemium treatment; however, the remedy was pushed, while the eyes, minus the glasses, were exercised in a manner similar to Dr. Dyer's method. At this time the indicated astigmatism was neutralized by $+60^\circ$, but the glass was not satisfactory to the other existing conditions. The eyes improved under the gymnastic exercise till an hour's reading was attained with ease and comfort, with but a shade of trouble in the left eye. This shade disappeared in the early part of the following June, when $+60^\circ$ ax. 90° was prescribed, with a plane glass for the right eye.

In November, 1887, an enthusiastic real-estate agent from Santa Rosa complained that his glasses, $+12$, did not suit his eyes. His refraction was found to be hyperopic in both eyes, but also apparently astigmatic in the left, requiring $+10^s \subset +24^\circ$, ax. 45° ; the right eye was $+12$. In two weeks the Gelsemium did away with the apparent astigmatism, and $+12$ was eminently satisfactory to both eyes. I attribute this result entirely to the remedy, believing that neither the glorious climate of California, nor the delicious land boom of that season, are entitled to any credit whatever. Work similar to this has been done on several occasions, and lately an astigmatic combination worn by an old lady seemed to have lost its capacity for the proper performance of its duty, but the same remedy brought about a perfect understanding between the discordant eyes and glass.

January 2, 1888, a case of myopia and astigmatism seemed to require the following combination:

$$\text{R. V.} - 48^s \subset -42^\circ, \text{axis } 90^\circ = \frac{20}{20}$$

$$\text{L. V.} - 48^s \subset -48^\circ, \text{axis } 67\frac{1}{2}^\circ = \frac{20}{20}$$

By the 10th of the month under Gelsemium 2x the left eye had remained unchanged, but the right eye required $-42^s \subset -42^\circ$, ax. $112\frac{1}{2}^\circ$, and the combination holds good to-day, one year afterward.

Finally, Dr. C. E. Fisher, the genial and aggressive exponent of homœopathy in the South, and editor of the *Southern Journal of Homœopathy*, has a pair of versatile eyes, that are addicted to the

most startling of astigmatic vagaries. During the doctor's visit to this city last summer, he gave me the following history: Some months previous to this visit, the eyes had been thoroughly tested, under atropine, by a prominent oculist, and fitted with a combination which seemed for a while to be appropriate, but at length the eyes again began to complain and the glasses lost their power to soothe, while at length the eyes resumed their depraved antics with a promptness worthy of nobler aspirations. The case looked forbidding, but about the first of August the trial began, and Gelsemium 2x pushed in the usual manner. In two weeks everything was satisfactory, and the prescription ground to order.

Dr. Fisher, in the September issue of the *Southern Journal of Homœopathy*, speaks of the result as "a glass through which to work is a real pleasure," and finally sums up the whole matter in a nutshell, viz: "For several years we had not been able to read or write longer than a few minutes without inconvenience and pain, but since our return, as a test, we have carefully perused two octavo volumes of above three hundred pages each without the slightest discomfort to the eye."

Being anxious about the influence of time, I wrote to the doctor for the facts as they existed at that time, and I received a reply under the date December 13, 1888, an extract from which, with permission, I quote: "Yours at hand and noted. My 'ogles' do splendidly. I have not had to take Gelsemium since coming home."

This mode of procedure, though eminently revolutionary, is not infallible; in several instances it was not a success. The failures I deem due to remote reflex disturbances, in which condition the eyes can not be permanently corrected. However, the points I wish to emphasize are the gratifying results obtained both in myopia and hyperopia, combined with astigmatism, without the use of mydriatics, and also of success with Gelsemium in unravelling intricate combinations, when with atropine the hyperope has borne the annoyance of a paralyzed accommodation, and perhaps an iris that may not recover its normal tone and action for months, while the prescribed glasses are a failure. In the myope, there being no necessity for paralysis, as there is no accommodation, Gelsemium has proved quite as satisfactory as in the opposite refractive condition.

EXENTERATION VERSUS ENUCLEATION OF THE EYE.*

BY W. P. FOWLER, M.D., ROCHESTER, N. Y.

Five years ago, there appeared in the January number of the *American Journal of Ophthalmology* an article by Geo. F. Fiske, M.D., entitled "Exenteratio sive Evisceratio Bulbi." In his paper the author states that "this operation as a substitute for enucleatio bulbi, was introduced by Prof. Alfred Graefe of Halle, and described by him in an address delivered before the Society of German Naturalists and Physicians in Magdeburg in September, 1884." Dr. Fiske also goes on to say: "This address, to be found in the voluminous Proceedings of the society, is not accessible to American ophthalmologists, and this fact is my excuse for again describing the operation and the grounds for its introduction, while a position for nearly a year as volunteer assistant in Prof. Graefe's clinic has enabled me to take notes of a number of cases which will, perhaps, be of some interest."

Now, on reading this paper in 1884, I was very much surprised that the operation should be described and offered as anything new, for in 1874, ten years before Prof. Graefe delivered the address mentioned, exenteration of the eye was frequently performed by the surgeons of the N. Y. Ophthalmic Hospital. In 1874-5, I was taking a special course of instruction in this excellent institution, and had the pleasure of witnessing abscission of the cornea with evacuation of the globe performed by the lamented Dr. Liebold, by Dr. Geo. S. Norton, Dr. Hunt, and others.

*Read by title before the Homeo. Med. Soc. of the State of New York.

Since that time I have myself performed the operation repeatedly, and look upon it as something old rather than new. Of late, however, evisceration has become quite fashionable, if I may be allowed to use that word, and many ophthalmic surgeons, especially those in Germany, speak enthusiastically of it and call attention to its supposed advantages over enucleation. Becker * eviscerates the eye, even in cases of panophthalmitis. Mase † favors the operation, and Bunge ‡ justifies it and indorses A. Graefe's views. Siegel and several others have published articles favoring it.

The advantages claimed for exenteration over enucleation are these :

1. It leaves a better stump for the wearing of an artificial eye than is obtained after enucleation.
2. There is less danger of meningitis following the operation.
3. Because only the diseased portion of the eye is removed.
4. It is performed more easily and quickly than enucleation.

That a better stump is left after exenteration for the wearing of an artificial eye is, I believe admitted by all ophthalmic surgeons who have had any experience with both operations. After exenteration, nearly all of the sclera, with the ocular muscles attached, is left. Of course the stump contracts to a small size, but sufficient of it remains to give considerable motion to the artificial eye—more than is obtained after removal of the bulbus.

There is one serious objection, though, to the stump left after evisceration—*it is sometimes irritable*. In one of my cases in which this operation had been performed, on inserting an artificial eye the patient experienced some pain. I at first thought this due to the eye being too large, and

* Sixtieth meeting of the German naturalists and physicians at Wiesbaden, 1887.

† Inaug. Diss. Kiel. 1887.

‡ Com. from the opth. clinic at the University at Halle.

exchanged it for a smaller one. The effect was the same with this. Still, the eye was worn most of the time for three weeks, when the patient's remaining eye became very sensitive, with pericorneal injection and increased lachrymation. The artificial eye was now removed and not worn again for a month.

Irritation of the eye quickly subsided, and did not return until the eye was once more inserted. The unfavorable symptoms then came on again, but in a slight degree. In a few days the irritation ceased and did not reappear.

In this case the operation was carefully performed, and followed by no unpleasant symptoms save a slight chemosis, and puffiness of the eyelids.

In operating I was careful, as always, to make the incision far enough back to remove all of the cornea, and the globe was thoroughly cleared of its contents, so that nothing remained but the sclera. Five weeks elapsed before an artificial eye was worn. The socket at that time presented a healthy appearance, being free from all indications of inflammation.

This is only one case, but I am informed by other oculists that they have in a few instances had similar results after exenteration. Why should the stump be irritable in one case, and free from all tenderness in so many others? I can not be sure as to the cause of this. Probably, though, during the healing process in certain cases, the tissues contract in such a way as to press upon and irritate the ciliary nerves at the point where they pass through the sclera at the posterior position of the eye. After *enucleation* any difficulty of this nature could hardly occur, as the several ends of the ciliary nerves lie within the soft, yielding tissues of the orbit, where contraction could not affect them.

The *second* advantage claimed for exenteration—that there is after it less danger of meningitis—is not, as yet, by any means established. Something over thirty deaths from meningitis following enucleation have been reported. In two of these cases, panophthalmitis was present when extirpation was resorted to, and in two others the same

condition threatened. If we take into consideration the vast number of times enucleation has been performed in Europe and America, and then compare the small number of deaths, we can come to no other conclusion than that it is a very safe operation.

I fail to find on record any case in which fatal results followed evisceration. But it must be borne in mind that this is a rare operation as compared with removal of the eye. As far as my observation goes, the healing process is much slower, and accompanied by more unfavorable symptoms, after exenteration than after extirpation.

Of the twenty-six cases of evisceration in my practice, only five recovered without more or less chemosis, swelling of the lids, and pain. In one case the symptoms were alarming. There was chemosis; great swelling of the lids, which were dark red, hard and stiff; severe pain in orbit and head; high temperature, and mild delirium lasting two days. The patient was a robust young man of good habits. Purulent conjunctivitis had destroyed his eye, and when he first consulted me there was total staphyloma of the cornea. The eye had been at times painful, but when I operated there had been no trouble of this kind for a month or more. The severe orbital cellulitis was controlled by the prompt use of iced applications, Acon., and afterward Rhus tox. There was only a slight discharge of pus. Six weeks elapsed before the socket was in condition for an artificial eye. The stump at that time was, and has since remained good.

Dr. H. Knapp,* in his report of a case of orbital cellulitis—thrombosis—following evisceration says: "As to the causation of the thrombosis, I venture to give the following explanation. The vortex veins, passing obliquely through the sclerotic, a dense, fibrous tissue of very limited elasticity, will, when divided, not contract as veins in soft tissues, but remain gaping, holding a considerable column of blood, which with its thicker end dips into the liquid contents of the eviscerated globe—in our case, the blood from secondary hemorrhage. The vortex veins in their course

* *Archives of Oph.*, vol. xiv. p. 311.

through the sclera are, therefore, in a similar condition as the veins of bones, which, according to the researches of Virchow, as all know, are by their potency in a particularly favorable condition for thrombosis and its consequences. Suppose the liquid with which the open vein communicates is infected, by some cause or other, then the orbital cellulitis will speedily assume a malignant character." This explanation of Dr. Knapp's is certainly a most clear and plausible one.

On the other side of the question, Prof. Alfred Graefe,* in his address, referring to the danger of meningitis after enucleation, says: "The meningitis is developed by propagation from a septic irritation of the wound along one or more of the ways of communication leading to the cranial cavity. The present methods of antisepsis are powerless to prevent this fatal accident. The cause of the irritation is probably infection of the wound. In a case of Prof. Leber's, he was of the opinion that the inflammation followed the orbital veins into the cranium, and in a case in my clinic which was microscopically examined, the inflammation seemed to have travelled along the intra-vaginal lymph spaces of the optic nerve, the walls of which were swollen."

The advocates of evisceration lay great stress upon this point—that "the ways of communication between the orbit and cranium, especially the lymph sheath of the optic nerve," are not wounded by the operation, and that, therefore, meningitis is less liable to follow. I think, however, that the danger of enucleation is magnified. My experience with this operation has been most pleasant. I have had about double the number of these cases that I have of evisceration, and in all of them, with one exception, the patient made a rapid recovery. No alarming symptoms occurred, and a stump was left that gave considerable motion to the artificial eye. I report the case that was slow in recovering :

**Am. Jour. of Oph.*, vol. ii. p. 2.

Dec. 20, 1887.—I was sent for by Dr. Johnson of Pittsford, N. Y., to go and see Charlie V., a lad fourteen years of age, who had injured his eye. On arriving at Mr. V.'s house I was given the particulars of the accident. Two days before, the boy was endeavoring to load a revolver with a cartridge one size too large to enter the chamber. Not being able to press the cartridge home, he commenced hammering it in with the handle of his knife. An explosion promptly occurred. The shell struck Charlie on the lower lid of the right eye, passed through it and the eyeball, and lodged in the orbit above and behind the globe. Strange to say, only a small amount of vitreous escaped, and when I saw the patient the eyeball had not collapsed. There was profuse intra-ocular hemorrhage and some pain. Enucleation was advised, consented to, and promptly performed under ether, Drs. Johnson and Doan of Pittsford assisting in the operation. The shell of the cartridge was found deeply buried in the tissues of the orbit. After its removal, the edges of the conjunctiva were brought together as usual by silk sutures, the wound in the eyelid closed, calendula and water dropped into the conjunctival sac, and a compress applied. Acon. was given for three days following the operation. The lad experienced no pain, there was no rise in temperature, and no swelling of the lids. There was, however, some discharge from the orbit, due no doubt to the lacerated and contused condition of the tissues left by the shell. Calendula and cold water was the only application used. In five weeks the wound had healed, and the patient was wearing an artificial eye. There has been no further trouble with the case.

It is my belief that when exenteration has been performed a great number of times, it will be found that it is not as safe an operation as enucleation.

The *third* reason given for preferring evisceration—that only the diseased portion of the eye is removed—is covered by the first advantage claimed; that is, it leaves a better stump for an artificial eye. I would say right here, though, that occasionally we meet with patients to whom the idea of having the whole eye removed is very repugnant, and when informed that only the diseased portion is to be excised, they readily consent to an operation.

The *fourth* advantage claimed—that exenteration is per-

formed more readily and quickly than enucleation, I question. True, it is a simple matter to abscise the cornea and eviscerate the eyeball, but it is often a *tedious* proceeding, for whether a scoop, sponge, or wads of absorbent cotton be used to rid the scleral cavity of its contents, considerable time is required, as the choroid usually adheres closely to the sclera, and must be removed piecemeal. Then again there is always some hemorrhage, which interferes with the progress of the operation. With me, less time is required to enucleate than to eviscerate, and the former is certainly a prettier and neater operation than the latter.

For the past seven years I have not eviscerated the eye except in a few cases where the patient would not consent to extirpation, or in which the cosmetic advantages were greatly desired. My experience has been such as to cause me to look upon the operation with distrust. The reaction following it is liable to be severe, and besides this, I believe that it is not a safe proceeding when sympathetic inflammation threatens, notwithstanding the fact that many ophthalmic surgeons in Europe, and a few in America, advocate it.

Cross * reports two cases of sympathetic ophthalmia occurring after evisceration. In both, artificial vitreous bodies were inserted, and it may be claimed by some that these, by irritating the stump, caused the trouble. To me it proves that *anything* that would irritate the remains of the eyeball after exenteration might lead to sympathetic ophthalmia. An artificial eye would be liable to produce this result.

* Trans. Oph. Soc. United Kingdom, 1887, vol. vii. p. 148.

THE TREATMENT OF HYPERTROPHIC AND ATROPHIC AFFECTIONS OF THE NASAL AND PHARYNGEAL MUCOUS MEMBRANES BY THE CHEMICAL GALVANO-CAUSTIC.

BY H. H. CRIPPEN, M.D., SAN DIEGO, CAL.

Eighteen months ago, while engaged in translating, for the *Homœopathic Journal of Obstetrics*, a portion of Dr. Apostoli's work on the galvano-caustic in diseases of the endometrium,* my attention was drawn to a consideration of the value of this treatment in diseases of mucous membranes elsewhere, particularly in diseases of the nasal and pharyngeal mucous membranes. From these considerations arose investigations, and it is partly upon these that I base that which I now lay before you. But during the time in which I exhausted much labor and patience in my endeavor to arrive at definite results, I found Dr. Garrigou-Désarènes, of Paris, conducting researches in the same direction, the happy results of which he has lately published.† In correspondence with him I derived much from the fruits of his large clinic, and in giving voice, then, to the technique of this new method of treatment, to be as complete as possible, I also include here, with the kind permission of Dr. Garrigou-Désarènes, his various teachings on the subject.

First of all, a few considerations on the influence of this mode of treatment in producing alterations in the nutritive processes of the tissues, that is, on the *double action* of an

* "Sur un Nouveau Traitement de la Métrite Chronique et en particulier de l'Endométrite par la Galvano-caustique Chimique intra-utérine."

† "Du Catarrhe Chronique hypertrophique et atrophique des fosses nasales, de l'ozène, obstruction catarrhale des trompe d'eustache, végétations adénoïdes du pharynx—Traitement par la galvano-caustique chimique." 1888.

uninterrupted galvanic current of high intensity : First, we have a purely local action. As in electrolysis the tissues of the mucous membrane in immediate contact with the pole are decomposed, that is, the contained water and salts suffer analytic action, the bases and acids are set free, producing, according to their nature, a greater or less caustic action upon the surrounding parts. In this last, this subsequent action, lies the distinctive difference between electrolysis and the method of which we speak ; that is to say, electrolysis consists solely in analytical action, while the chemical galvano-caustic process adds to this, secondary syntheses. Later we will speak of the difference between the chemical galvano-caustic and the thermic galvano-cautery. At present we are concerned with the second, and, as I considered it, the most important effect of applying a continuous galvanic current of high intensity, that is, its *trophic* action ; by which, through the influence over the nerves, the vessels, and the lymphatics of the sub-mucous tissues, modifications of nutrition are instituted, in the direction of regression and disintegration.

These trophic effects occur, not, like the caustic action, at the points of entry and exit of the current, but in the interpolar circuit. They do not become immediately visible, but manifest themselves by a continued influence over nutrition. These trophic effects, then, may be directed to correct nutritive perversion, either in deficiency or in excess, and thus to act upon an atrophy or an hypertrophy by establishing an equilibrium of nutrition.

In regard to the distinction of the chemical galvano-caustic from the thermic galvano-caustic, Apostoli's words explain in brief : " On the one hand the tissues are cauterized by an exterior agent—on the other, the caustic element is evolved within themselves." That is, in the thermic process the current is foreign to the body ; in the chemical form the current traverses the body, and the caustic substance is chemically evolved out of the decomposition of the tissues.

With regard to the difference in the action of the two poles it may be briefly stated, that the positive pole, exerts

an acid action, relieves congestion, and exercises a powerful hæmostatic influence. On the other side, the negative pole is denutritive ; its action is that of an alkaline caustic, of diffuent character, softening and liquifying the tissues, tending to excite the obstructed or the perverted circulation of atrophic forms of diseases of the mucous membrane. These facts are of importance with relation to the application of the galvano-caustic current in the affections to be taken up separately further on.

The necessary apparatus includes, first, a battery capable of delivering a current of at least fifty milliamperes. It will, however, be found more convenient to use a battery capable of delivering a continuous current of greater value than fifty milliamperes, for the reason that the reserve force serves to supply the place of that which will be lost by frequent use, without the trouble of recharging. As to the kind of battery, we have not time to discuss the merits and demerits even of one of them. Much depends on personal experience in giving choice to a particular variety. Dr. Garrigou-Désarènes tritely remarks that the best is "that which, while occupying a minimum of attention, gives a sufficiently strong current and lasts the longest without recharging." Second, the galvanometer is indispensable to the success of the operation ; not the old form, graduated in degrees of a circle, but the later instrument, marking the number of milliamperes to be credited to the current. More extended descriptions of the galvanometer and of the various batteries (as well as of the cutaneous electrode) will be found in Apostoli's work, and in several articles on the use of the galvano-caustic treatment in gynæcology, which have appeared in the current literature of 1887 and 1888. We only stop, then, for a short note on the cutaneous electrode, for this instrument is of an importance equal to that of the nasal or pharyngeal electrode.

The care of the cutaneous electrode demands close attention, as the pain and smarting of an eschar, from an illy applied cutaneous electrode, when using currents of high intensity, is a feature to which patients decidedly object.

Geloline.....	gm.	18
Glycerine (Neutral).....	"	100
Water.....	"	500

† *Op. cit.*

been kept hot during this time, is strained over this and left to cool. That side of this electrode which corresponds to the glass plate is the one designed for contact with the patient's skin, while the other side, in which imperfections exist, from inequality of surface in cooling, or from air-bubbles, is to be connected with a malleable metallic plate, to which the rheophore or conducting cord may be attached. To prevent drying when not in use, protect the cake of gelosine by wrapping it in oiled silk.

Electrodes for application to the nasal mucous membrane.—First, as to material for construction.—Platinum, though expensive, gives the best results and in the end will be found the cheapest. All other metals, even silver to



FIG. 1.

some extent, become oxidized during the passage of the current and thus interfere with the accuracy of the results. Second, as to shape.—This of course must correspond in size and form of that portion of the nasal mucous membrane to which it is desired to apply the electrode. Thus the platinum electrode may be constructed in the form of small oval plates, of bulbs, or of an olive-shape. The most serviceable, however, in those hypertrophic forms of nasal catarrh which one most frequently finds, and which is most easy of construction, is the form I commonly use (Fig. 1); that is, a simple plate of platinum, very thin, and very flexible, about five inches long, and three-eighths of an inch wide. To this plate any jeweler will solder a light metallic handle furnished with a screw for convenience in securing the rheophore. To protect the nostrils, and the nasal mucous membrane at the parts upon which we do not design

the current to act, it is a simple matter to slip over the plate and handle a tightly fitting rubber-tube, adjusting it with relation to the parts where one intends to isolate the electrode.

In like manner one can, at comparatively small expense, construct a set of very serviceable electrodes adapted to treating circumscribed areas.

Dr. Garrigou-Désarènes uses only the plate of platinum, but, for convenience, I find that the metallic handle, especially at the angle (as seen in Fig. 1) I have given it, affords greater precision in adapting it to the part on which I wish to act. Besides this, the small screw for fastening the rheophore is a great improvement over a simple hole in the platinum plate.

Of the rheophores or conducting cords, as their use is the same as in other forms of electrical treatment, I need say nothing but that it is indispensable to have them well secured to the poles of the battery and to the electrodes, and to see that their continuity is intact.

An operating chair is a necessary adjunct, as without some contrivance in the form of a head-rest there is difficulty in maintaining the patient's head in an immovable position.

Thus far I have been as brief as possible, for the reason that descriptions have already been given by several authors of the *armamentarium* of the galvano-caustic treatment as applied in gynæcology, and that the batteries, the rheophores, the galvanometers, and the cutaneous electrodes do not differ in their major details for our use here. But with regard to the technique of the operation we find ourselves in an entirely new field, and I may be pardoned for entering at length into certain procedures, upon which much of the success of the galvano-caustic treatment of nasal affections depends, and from which one can not depart without meeting difficulties and dangers.

Let us suppose that the seat of the lesions to be treated has been ascertained; that the patient has been assured of the painless nature of the operation and that we have his confidence; that the battery, the rheophores, the galvanometer,

and all accessories have been examined and found in perfect working order; and that we have disposed these last within such convenient reach that we have only to stretch out our hand to manage them. We are now ready to place the electrodes.

The cutaneous electrode will be placed first, preferably on the fore-arm—if it can not be placed there, then on the nape of the neck, thigh, or above the knee. The arm of the patient is made to rest comfortably upon the arm of the operating chair or upon a table placed conveniently near. The electrode, whether of sculptor's clay or of gelosine, must be exactly adapted to the skin of the part, and if necessary may be fixed in place by an elastic band. Before placing this electrode in position it will be advantageous to attach to it the conducting cord.

In placing the nasal electrode in position, it matters little as to its form; whether olive-shaped, cylindrical, or flat, the principle is the same. It must be exactly adapted to that portion of the nasal mucous membrane on which it is designed to act. In introducing the flat plate electrode, it must be passed in a direction parallel to the floor of the nasal fossæ, and never directed upward or downward. If there exists a tortuosity of the nasal fossa, the thinness of this electrode permits of its being bent to the desired shape. If the patient complains of discomfort while the electrode is being introduced, the application of a 4 per cent. solution of cocaine hydrochloride will not only diminish the sensibility but will, in cases of simple chronic rhinitis, diminish the swelling of the membrane and lessen the resistance to the passage of the electrode. Take the utmost care to dispose the rubber-tube covering the electrode so as to protect the skin at the nostrils from the action of the current. To fix the electrode in place, and to support it and the conducting cord, so as to prevent dragging downward, I use a modification of Sajous' apparatus for holding in place a nasal speculum. This consists of a band, buckled around the forehead of the patient, which is furnished with a hook that can be raised and

lowered by means of a screw. This hook, by fitting into the angle formed at the junction of the handle of the electrode with the thin blade, furnishes a support which sufficiently immobilizes the instrument. Besides this a small hook at the side of the band affords a resting-place for the rheophore.

All this apparatus being in place and the rheophore attached to the battery, we are ready for the operation proper.

With attention, on the one side, to the galvanometer, to note the movement of the indicator, on the other to the patient, in order to be aware of the sensations he experiences, we proceed *slowly* and with an *equal progression* to add one cell after another to the current.

It is seldom that patients complain of pain or of any marked discomfort, but if, with nervous and impressionable persons, there is restlessness and a tendency to movement, it is well to stop, and afford time, during which they may calm themselves. In the beginning, ten to fifteen milliamperes can be easily attained, and as the patient becomes accustomed to the treatment this can be increased to twenty-five, thirty, or to fifty milliamperes. When once the intensity of current that is desired has been attained, it must be maintained at that point without interruption until the operation is completed. It is unnecessary to add more, at present. The intensity of the current and the time during which it must be applied depend upon a variety of circumstances, such as the lesion to be treated, and the number of applications required, all subject to the experience and judgment of the operator.

In closing the operation it is necessary to exercise as much care as in commencing an application. One by one the cells should be thrown out of the circuit, thus avoiding any disagreeable shock. In proportion as one guards against giving discomfort to the patient, just in that proportion will it be found that the patient will submit more easily to the manipulations.

After the operation no extra precautions are necessary.

There is no pain, as after the galvano-cautery, or after the use of acids; neither need there be fear of those grave accidents which sometimes follow bloody operations on the nasal mucous membrane and even after the use of the galvano-cautery knife. The patient can attend to his ordinary occupations without fear of complications. Dr. Garrigou-Désarènes states that he has several times had occasion to treat females advanced in pregnancy, and in spite of repeated séances has never met with bad results.

Intensity of the Current.—I have already spoken of the trophic action exerted by a current of high intensity, and now it must be noted that this trophic action is in direct proportion to the intensity. The greater the number of milliamperes of current that we attain, then the sooner will we effect those modifications of nutrition that we desire. But the intensity used must, again, depend upon the subject to which it is applied. The only true guide, then, is the sensibility of the patient and the obstinacy of the lesion to be treated. Judgment is invaluable in deciding the point at which the intensity must be arrested. In the first operation, ten to fifteen milliamperes is usually used, and with easy gradations one can, after four or five treatments, reach thirty milliamperes without discomfort to the patient. In long-standing nasal affections, especially among men, it is sometimes possible to attain a current of fifty milliamperes intensity. However, with currents varying from fifteen to thirty milliamperes, I find that good results may be quickly attained. Below fifteen milliamperes curative results appear very slowly.

The time of action of the current must be from ten to fifteen minutes. If longer than twenty minutes' duration, the current will produce a serious eschar. During the first application ten minutes is a sufficient length of time, but, in dealing with those of strong constitution, this may be increased up to fifteen minutes.

As to the frequency of operating by the galvano-caustic, something also depends on the nature of the lesion—its length of duration and its nature. A case of atrophic rhin-

itis certainly will require more energetic treatment than a case of simple rhinitis. I repeat the treatment not oftener than every three days, and from this I vary as to the case, but insist upon treatment at least once a week. In short, the interval should be neither too long nor too short, but I confess that I have not arrived at any degree of exactness in judging how long the trophic action of a current of given intensity will act in a given case ; and, as to how many operations will be found necessary, we must again answer that they depend upon the nature of the case. I have seen a case of simple chronic rhinitis terminate in restoration of the nasal mucous membrane to its normal size in six séances, while on the other hand more than thirty treatments have been found necessary in some atrophic cases.

Having considered in a general way the technique of the chemical galvano-caustic in its application to the treatment of diseases of the nasal mucous membrane, we are now prepared to consider each trouble individually.

PARTICULAR APPLICATIONS.—It will be sufficient, after giving due attention to the general rules already stated in the first part of this work, to take up, on the one hand, simple hypertrophic rhinitis as a type of the hypertrophic affection, and, on the other, atrophic rhinitis as the type of loss of tissue elements ; for, in a general way, all the varied conditions of the nasal and pharyngeal mucous membrane can be classed *for treatment* under one of these two divisions—hypertrophic or atrophic—the positive pole to be employed for the hypertrophic forms, the negative for the atrophic states. Thus, the positive electrode is placed in contact with the mucous membrane in simple chronic rhinitis, in hypertrophic rhinitis, in syphilitic rhinitis, in adenoid vegetations of the pharynx, etc. ; while the negative electrode applies to atrophic rhinitis and to ulcerations not accompanied by hypertrophic processes, such as we find, for example, in syphilitic rhinitis.

SIMPLE HYPERTROPHIC RHINITIS.—A moment's glance at the pathology will show at once the indications for the use of the positive pole. The epithelial elements overlying

the membrane proliferate. The other elements of the mucous tissue, those constituting the deeper layers, follow the same process. The hyperæmia of the beginning gives place to an infiltration of embryonal cells, which, becoming organized into connective tissue elements, constitute thickening; that is, the hypertrophic state ensues. This increase of connective tissue elements affects the walls of the cavernous sinuses, rendering them rigid and preventing their contraction. Through dilatation of the capillaries, during the antecedent hyperæmic process, these two undergo an increase of calibre, which, when fixed and rigid by thickening of the walls, constitute additional sinuses. By means of unequal intensities of proliferation the mucous membrane becomes uneven, greatly hypertrophic in some places (particularly on the posterior portion of the inferior turbinated bone), less so in others. Thus we have, in brief, great vascularization and increase of connective tissue elements as the prime factors in simple hypertrophic rhinitis, and to these correspond the direct action of the positive pole as a coagulant and hæmostatic, and its indirect action through which it modifies by *trophic* action the molecular changes.

Having by due examination decided that we are in the presence of a chronic hypertrophic catarrh, it is only necessary to apply the chemical galvano-caustic current, using the positive pole in the manner indicated under the *technique* of the operation. Where there is great irregularity of the surface of the mucous membrane, special forms of electrodes must be used. Occasionally the form I have illustrated may be made to serve by bending into the shape desired.

Before applying the current the nasal passage must be thoroughly cleansed, and here, as in all other cases when I desire to apply a simple cleansing solution to the mucous membrane, I use a spray of borax in the proportion of 15 to 20 grs. to the ounce of water. During the intervals of using the continuous current the patient is advised to use daily the same solution with a hand-atomizer.

Usually during the first two or three treatments the patient is a little timid, and it is seldom that more than 15

milliamperes of intensity can be attained at this time. But as the patient grows accustomed to the sensations of the current, one can push on to an intensity of 30 milliamperes, and more if required. After a few treatments of this intensity the results of the application will begin to manifest themselves. The hypertrophied turbinated bones recede from the septum and diminish in volume. The breathing becomes more comfortable and the mucous membrane loses its hyperæmic appearance, its red color, and takes on the normal light pink hue of health. It is difficult to say exactly how many sittings or applications will be necessary to bring about these results ; so much depends on the patient's state of health, on the surroundings at home and while at work. I usually put the number at from twelve to fifteen when the patient pushes me to a decided answer, but in favorable cases I have seen eight suffice.

In all these applications internal medication is of value. That we are using the galvano-caustic current is no contraindication for the indicated remedy. But my work just now is not to give indications for internal remedies, but to add all that I can to our knowledge of the treatment under consideration.

ATROPHIC RHINITIS.—When I say that atrophic rhinitis has been one of the most unsatisfactory of all the nasal affections in its response to treatment, I believe I echo the feeling of all my colleagues. But since I began the use of the treatment I advocate I feel more confident of my results, and that the time and expense demanded for my first experiments were time and money well spent.

In the first place I demand that the patient place himself under daily treatment. The spray is used every day, and the mucous membrane kept in the cleanest possible condition by the use of the solution of sodium borate before advised. Besides this, at the time of operation, the membrane, in the situation where it is designed to apply the electrode, is wiped dry with the robe wound with a pledget of absorbent cotton, leaving a minimum of mucus to interfere with the action of the electrode.

The negative pole is placed in contact with the mucous membrane and the same precautions taken as in all other applications, except that since the current does not act upon the metal at this pole we can use copper electrodes in place of platinum.

As before, the first operation should be of slight intensity and short duration, increasing with subsequent seances to 20 to 50 milliamperes applied during a period of ten minutes.

One precaution is necessary ; that is, after closing the sitting when removing the electrode from the nasal cavity. Not that the metal has a disposition to adhere to the mucous membrane, but that it sometimes sticks fast to a crust of mucus which has become very adherent to the membrane.

It will be necessary to extend this treatment for atrophic rhinitis over some length of time. The disagreeable character of the breath first disappears ; next, the dryness of the nasal cavities abates, and there appears gradually a secretion of mucus that may be seen to grow more and more of a normal character, losing its greenish color. The tendency to the formation of crusts also lessens as the secretion partakes more of the character of normal mucus. After a sufficient number of operations the mucous membrane itself will be seen to regain some of its normal aspect, and even to restore in part, by its regeneration, the nasal passage to its normal size. The sense of smell is in some cases restored to a marked extent. Dr. Garrigou-Désarènes reports to us the striking example of a woman to whom the sense of smell was completely restored after having been absent for three years,

Finally there is one affection amenable to the chemical galvano-caustic current of which I can speak only through the authority of Dr. Garrigou-Désarènes, namely, stricture of the Eustachian tube.

In this operation there is required a hard rubber Eustachian catheter and fine gum bougie. This bougie must be very flexible, rounded at the extremity intended for in-

troductio into the Eustachian tube. At this extremity it has also an eyelet through which is passed a fine silver wire. This wire winds, in its course outward, in a spiral manner about the bougie, and affords thus an electrode which adapts itself to the shape of the tube by means of the flexibility of the filament that supports it. Besides this the gum bougie is marked, on the extremity protruding externally through the hard rubber catheter, by indices indicating the extent to which the filament protrudes from the catheter into the Eustachian tube internally.

Provided with these instruments in addition to those ordinarily required, the Eustachian catheter is first introduced into the tube. Once in place, the gum bougie armed with the filament of silver is passed through it and made to penetrate into the Eustachian tube from 10 to 25 millimetres (its penetration being noted from the index presented by the extremity protruding externally), according to the judgment of the operator.

The cutaneous electrode being in place on the lower part of the forearm (or later, as the patient accustoms himself to the operation, on the mastoid), the conducting cords are attached, and the operation may be proceeded with as in all other cases.

Here, however, we find it necessary to deviate from the general rule, "the positive pole for hypertrophic conditions," and use the *negative pole*. The reason for this is that the slight cicatricial effect produced by the positive pole may interfere anew with the passage of air through the lumen of the tube. The action of the negative pole in this case is to produce a regression and a denutrition of the connective tissue which, by its hypertrophy, narrows the Eustachian tube. In this way it does not expose to consecutive stricture from cicatrices as does the positive pole.

The intensity given the current can be from five to ten milliamperes, and the seance is extended over ten minutes time.

This operation on the Eustachian tube must be closely followed up by the use of the Politzer air-bag, and at the

same time must be accompanied by suitable treatment for co-existent catarrhal difficulties of the nose and pharynx.

Dr. Garrigou-Désarènes is an ardent advocate of this treatment for stricture of the Eustachian tube, and cites a number of cases which, once considered hopeless, have received great benefit from the operation. For my part, judging from my experience with the chemical galvano-caustic in maladies of the mucous membrane elsewhere, I look upon the proposed operation as feasible and destined to afford help in many obstinate cases.

In conclusion, let me say that it has been difficult to produce within the bounds of a medical journal a full treatise on the use of the chemical galvano-caustic in the treatment of affections of the nasal and pharyngeal mucous membranes, and that I can only hope to have set forth the *technique* of the operation in terms that may be clearly understood.

THE AFTER-TREATMENT OF CATARACT EXTRACTION.

BY F. H. BOYNTON, M.D., NEW YORK CITY.

During the first years of my ophthalmic practice, I followed the traditional methods of after-treatment of cataract extraction, namely, the applications of the compress bandage to both eyes, compelling the patients to remain in bed for ten days, and carefully excluding all light from the room. For forty-eight hours they were required to lie quietly on the back without making a voluntary effort to help themselves, not even to raise the head to gain a more comfortable position. After this period they were turned on the side of the sound eye, and at the end of seventy-two hours were permitted to lie on either side, but the prone position was maintained until after the eye had been opened and the corneal wound examined, which in uncomplicated cases was done from the eighth to the tenth day.

While in bed, particularly during the first five days, they were kept on a starvation diet of gruels and other liquid nourishment. In later years Liebold taught us to use the mask, which was considered a great innovation, and which was in some respects better than the bandage. In all other respects the treatment was the same. As the result of this rigorous and, as it now appears, over-conscientious treatment, my patients came out of bed weak and emaciated from insufficient nourishment and long confinement; they were very intolerant of light, and weeks would be consumed in building them up again and getting them accustomed to the new order of things.

The debilitated condition of my patients after recovery

from the extraction, as well as the discomforts experienced from lying so long in one position, and the heat and irritation produced by the continued use of the bandage, caused me much anxiety and led me gradually to lessen the restrictions and inconvenience attending the prolonged treatment. No striking changes were at first made, for I had not the courage to radically change a plan of treatment that had been practiced and handed down for generations back. One by one the conditions were modified; they were gradually gotten out of bed earlier; more light was admitted to the room, and they were not required to maintain the prone posture after the first twenty-four hours. In May, 1887, through an accident, I was taught that the treatment previously practiced was unnecessarily severe. After an extraction made on an old gentleman who had a very large head, the ordinary mask and nightcap were adjusted. Four hours later I was summoned on account of intense pain in the operated eye, which came on soon after the application of the mask and had gradually increased until, when I reached his bedside, he was writhing in agony. Upon removal of the mask it was found that the border of the eye-hole, which in ordinary sized heads was large enough to rest outside of the orbital margin, had, in this case, rested lightly upon the eyelid and thence had exercised sufficient pressure upon the eyeball to set up an intense irritation, the outcome of which was watched with much anxiety. The prompt application of ice compresses allayed the pain; the wound healed promptly, but a severe plastic iritis and capsulitis followed, with complete blocking up of the pupillary space and organization of a dense capsule, which later received division by Knapp's needle-knife and gave vision of $\frac{20}{40}$. I then resolved to adopt the after-treatment proposed and practiced by Dr. Michel of St. Louis, and later by Dr. Chisholm of Baltimore:

Encouraged by their successes and freedom from annoying complications, I have since that time discarded the bandage in all operations involving the incision of the cornea, with to me the most gratifying results. Not only

after cataract extractions but after iridectomies and all simple incisions of the cornea have I found the treatment described in Case I. more satisfactory in every way than the traditional compress bandage.

The operation and subsequent treatment of cataract has by this means lost most of its terrors, and has been very much simplified. Patients thus treated have much less discomfort while in bed; they get up with but little loss of strength, and with perfect toleration of light. I dare not yet permit them to sit up immediately after the operation or to move around the room during the treatment, as Dr. Chisholm does. His results show that he is justified in lessening the restraints heretofore practiced, but the operation involves too grave responsibilities to take any unnecessary risks.

The following cases, recorded as they occurred (not selected cases, as no case has been refused operation), show very few complications, and it will be noticed that only one required cylindrical glasses for correction.

CASE I.—Mrs. W. A. G., æt. 38, a well-nourished mulatto, native of St. Thomas, W.I., with mature senile cataract of the right eye, and immature of the left.

May 23, 1887.—The patient was put to bed, and the face and eyelids bathed with bichloride solution, 1 part to 5000. The cataractous lens was then removed from the right eye by the Liebold method. By the "Liebold method" is meant an extraction through a corneal flap formed by making puncture and counter-puncture at the corneal limbus, beginning at the junction of the middle and upper third of the cornea and terminating near the upper border, forming a flap three or four millimetres high. The capsule is lacerated by crucial incision, and the lens extruded by conjoined pressure applied above and below, causing the wound to gap. A preliminary iridectomy performed not less than three weeks before the extraction completes the picture. No accident attended the operation; the cortical substance came away, leaving the pupil clear. After being certain of coaptation of the edges of the wound, the lids of both eyes were closed, and held together by strips of thin isinglass plaster one and one-half inch long by

one-half inch wide. The head of the bed was placed toward the window, but aside from this position the eyes were not protected from the light, and the window-shades were not even drawn. During the following seventy-two hours the patient made no complaint of uncomfortable sensations whatever. On the morning of the fourth day she was permitted to dress and walk around the room. On the fifth day the plasters were removed and were not reapplied; the corneal wound had healed, leaving hardly a trace of the line of incision; there was no pericorneal injection, lachrymation or photophobia. Three weeks later I made a triangular capsulotomy which, through the aid of suitable lenses, gave vision of $\frac{2}{1}\frac{0}{2}$. The happy termination of this case made me resolve to discard the older methods of after-treatment until a sufficient number of extractions should enable me to decide the relative merits of the various forms of after-treatment.

CASE II.—Mrs. H. H., æt. 62; American; blind for four years from mature senile cataract.

Oct. 18, 1887.—Extracted the right lens by the usual method. A small amount of cortex remained, which was subsequently coaxed out. The lids were held closed by strips of goldbeater's skin plaster. The corneal wound was not examined until the end of the eighth day, when the plasters were removed for the first time, and it was found to be perfectly healed. There was no redness of the bulbus, nor was there any œdema of the lids or troublesome lachrymation from the time of the operation until her discharge from the hospital three weeks later. She was permitted to dress and walk around the ward on and after the third day. Subsequent capsulotomy gave vision of $\frac{2}{2}\frac{0}{0}$ with proper lenses.

CASE III.—Mr. G. R. G., æt. 75; American; blind in both eyes for four years from mature senile cataract.

Nov. 1, 1887.—The usual extraction was made on the right eye, and the lids held together by thin plaster. This case had caused me much trouble the previous May, when, four hours after removal of an opaque lens from the left eye, he suffered a severe traumatic iritis and capsulitis from a badly-fitting mask, which lasted three weeks and caused dense opacity of the capsule and extensive iritic adhesions. The progress of the case was all that could be desired. The eye when opened on the fifth day was perfectly free from pericorneal injection and irritation, and did not shrink from the light. He was permitted to dress and go

around the ward at will. A capsulotomy four weeks later gave vision of $\frac{20}{40}$, although the eye was previously very myopic and a large circular posterior staphyloma existed.

CASE IV.—S. G., æt. 68 ; native of Poland ; a poorly-nourished feeble old man. This case presented very unpromising features on account of poor perception of light. Both eyes blind from cataract for eight years.

Nov. 10, 1887.—Extraction of a hard cataract was made on the left eye, and the lids secured by thin plaster. The wound healed kindly, and the dressings were removed on the third day, showing no injection, but vision was *nil* from a long-lasting detachment of retina.

CASE V.—T. M., æt. 61 ; English. A little, shriveled, wiry man, poorly nourished, and suffering from chronic bronchitis, with immature senile cataract of both eyes. Blind for four years. His operation had been deferred from month to month, waiting in vain for the cataracts to ripen. In despair of their ever maturing, and to prevent his becoming a public burden, the operation was undertaken, although the nucleus only was opaque, the cortex remaining quite transparent.

Nov. 11, 1887.—The usual incision was made, and the nucleus and some cortical substance easily removed ; the most of the retaining cortex was then coaxed out, and the lids closed with the plaster. The eye was opened on the fourth day, showing slight conjunctival redness. He was out of bed on and after the fifth day. On the thirteenth day a slight iritis developed which continued for two weeks. Subsequent capsulotomy and proper spherical glasses gave vision of $\frac{20}{12}$.

CASE VI.—On Feb. 11, 1888, the right eye was operated on, and although the cataract was quite immature, the lens came out quite whole, the wound healed promptly, and he was out of bed on the third day with a clear cornea, uninjected bulbus, and perfect toleration of light. This eye also gained vision of $\frac{20}{12}$ after incision of the capsule and +11.D. spherical.

CASE VII.—Mr. O. R. T., æt. 64 ; American ; mature cataract of left eye, immature of right.

Jan 7, 1888.—Operated for extraction of the left lens, no complications. Closed the lids by adhesive plaster as in the preceding cases. No discomfort was experienced until the seventh day, when a mild iritis supervened, evidently caused by an entro-

pium due to cicatrix of the lower lid at inner canthus, the site of an old wound. Traction on the lid by means of a suture passed through the skin near the border of lid and secured to the cheek by a plaster, removed the source of irritation, and the inflammation soon subsided. A dissection of capsule made four weeks later gave vision of $\frac{2}{3}0$.

CASE VIII.—Mrs. J. C., æt. 63 ; Scotch ; a well-nourished, fleshy woman. Mature senile cataract of both eyes of five years' standing.

Jan. 28, 1888.—Made extraction of right lens and dressed as in preceding cases. This patient had positively no symptoms ; she had no sensations that would indicate which eye had been operated. She was discharged on the fourteenth day entirely free from photophobia or irritability of the eye. Division of the capsule four weeks later afforded by the aid of proper lenses—spherical and cylinder combined—vision of $\frac{2}{3}0$.

CASE IX.—J. B., æt. 56 ; English ; very spare, nervous patient. Double senile immature cataract.

Feb. 10, 1888.—The usual extraction was made on the right eye and plaster dressing applied. This was a very intractable patient. He would forcibly open his eyes, and whenever the nurse would leave the room would get up and walk around until forcibly put to bed again. Notwithstanding these liberties and a long-lasting blenorrhœa of the lachrymal sac, the wound healed kindly, and he was permitted to dress and remain up on the fourth day. Discharged on the thirteenth day. Later the capsule required division, which with lenses gave vision of $\frac{2}{4}0$.

CASE X.—Mrs. E. S., æt. 84 ; Scotch ; mature senile cataract of both eyes.

Feb. 20, 1888.—Extraction was made on the left eye : no accident attended the operation. No uncomfortable symptoms appeared until the fifth day, when slight throbbing pain was complained of, and the lids became œdematous. Up to this time the plaster holding the lids together had not been disturbed. The eye was then opened and the corneal wound was found to be perfectly united. The cause of the pain and œdema was found to lie in an inversion of the lower lid caused by a laxity of the skin. Eversion by means of a suture being made, modified and permitted the speedy recovery of a mild plastic iritis and capsulitis. Sev-

eral capsulotomies were required to maintain an opening in the thickened capsule and to finally give vision of $\frac{2}{40}$.

CASE XI.—P. W. æt. 77; English; a feeble old man; mature senile cataract of both eyes. Right lens dislocated downward. Tremulous iris.

Nov. 30, 1888.—Usual incision made. Lens too freely movable to permit laceration of capsule; any attempt to cause expulsion of lens followed by protrusion of vitreous. The lens was scooped out and the usual dressing applied. The case made a good recovery with only slight iritis following.

CASE XII.—Miss S. D., æt. 85; English; mature senile cataract of both eyes. Blind five years.

Dec. 14, 1888.—Made the usual extraction on right eye, and closed lids with plaster. During the night following the operation the patient took on a wild atropine delirium and paced the floor for four hours. No injury was done to the eye by this excitement and exertion. The wound healed quickly. A capsulotomy performed three weeks later gave vision of $\frac{2}{20}$.

CASE XIII.—Mrs. A. A., æt. 36; French; mature senile cataract. O. S., leucoma corneæ cent. O. D. lost from secondary glaucoma.

Dec. 15, 1888.—Made extraction and closed lids with plaster. Wound healed kindly. Patient sat up on the fourth day.

CASE XIV.—J. M., æt. 67; English; mature senile cataract of right eye. Left had been previously operated.

Feb. 21, 1889.—Extraction was made without complication. Wound healed kindly. No unfavorable after-symptoms. Patient was out of bed on the third day and was discharged on the tenth.

CASE XV.—S. I., æt. 71; mature senile cataract of right eye. Poor perception of light.

Feb. 23, 1889.—Extracted lens and applied the strips of adhesive plaster to closed lids. Cornea healed promptly; no unpleasant symptoms followed. A detached retina prevented recovery of vision.

THE SURGICAL TREATMENT OF CATARACT.

BY C. H. VILAS, M.D., CHICAGO.

The methods of cataract extraction and after-treatment have undergone so many changes during the past few years that individual expressions of opinion may be acceptable, and aid in the selection of the best means. But in expressing an opinion based on such experience as has been had, one should do so with diffidence, and a mental reservation to change it whenever convinced either by his own experience or that of his professional brethren. By such views as I may offer, I rather hope to elicit individual expressions, that a just comparison may be made, than to impress any ideas of my own on any who may differ from me as a result of experience, or otherwise.

No one can glance over the early pages of ophthalmology without observing thereon a decided tendency to slavishly follow the examples of the predecessor. Since the time of what may be called the renaissance, one must equally see that a tendency to depart from old ways and to think independently has been the rule. Fashions have existed during the latter period, and probably always will, but independent thought and action are strongly marked. To this departure may be attributed that progression which has not only characterized ophthalmology but advanced it to the head of the surgical column.

Inasmuch as no medical cure has yet been found for senile cataract, operative surgery is demanded, and the choice lies among the operations promising the most success.

A decided disposition to return to the flap operation,

without iridectomy, may now be noticed. Unquestionably this method affords the most brilliant results when perfectly successful. But, as in other arts, perfection is often dearly purchased, for in many cases moderate success may be sacrificed to absolute blindness.

Many advocate an iridectomy a few weeks preliminary to the extraction of the opaque lens, believing it a valuable prophylactic. Some have been unable to reach a conclusion on this point; others have found that when the iridectomy has been made and the patient has returned home, too often he has not come back, but, going elsewhere, the first operator has been unable to note the effect.

Perhaps most who have tried all the modern ways have fallen back on the modified Von Graefe operation as on the whole the best, conceding other operations to individual cases requiring a special selection for peculiar reasons. They have decided that a Von Graefe operation so modified as to allow the section in the corneo-scleral junction, or slightly within the cornea, a small iridectomy proportioned to the eye, and Knapp's peripheral mode of opening the capsule, affords the best chance of success of any methods yet offered the profession.

No one perhaps doubts the efficacy of asepsis and antiseptics, though a difference as to their actual necessity may obtain. Numerous excellent operators dispense with them to their satisfaction, save in exceptional cases.

Cocaine has won such high rank as a local anæsthetic that no one regularly dispenses with its aid, and many always use it. To all it is indispensable. Accidentally, but early, I became a convert to the method which dispenses with the bandage, at least in the main. I operated on a case of senile cataract by the Von Graefe modified incision, and gave instructions to have the eyes kept carefully bandaged, adjusting the bandage myself before I left. On one of my visits, about the fourth day, I was surprised to find my patient sitting up in bed with nothing whatever on either eye, looking about as usual with his moderately affected companion eye, and laughing and chatting with his

neighbor, the sun shining directly on him. My first impulse was to rebuke the attendant, but refrained from fear of the mental effect on the patient. Instead I fearfully but carefully examined the eye, only to find it in perfect condition. On questioning the attendant I found he had understood me to say on the day of the operation, to leave the bandage in place that day only, and at night he had taken it off not again to put it on. So I said nothing, determined to let the case go on, which it did to perfect recovery. Fully appreciating that one case was not enough to determine so important a matter, I tried it on others, encouraged to do so by the experiences of others which about this time began to appear in our literature.

I have since noted the objections of Knapp and others, which should have weight. But if the final result is equally good in comparison with other ways, I think the many manifest advantages to both operator and patient outweigh the objections raised. No one course of after-treatment is adapted to all cases, and variations must be made to suit individual cases.

If a bandage is not used, at first it is necessary, and afterwards desirable in most cases, to fasten down the upper lid with a bit of plaster. The tarsus thus becomes a most effective splint.

No advancements in our art, since I have followed it, have so contributed to the comfort and convenience of both operator and patient, as have the introduction of cocaine, and the omission of the bandage in the surgical treatment of cataract.

TRIUMPHS OF HOMŒOPATHIC THERAPEUTICS IN OPHTHALMOLOGY.

BY HAYES C. FRENCH, M.D., SAN FRANCISCO, CAL.

While there is a narrow and abrupt limit to the remedial agents to which our old-school specialists turn with any sense of confidence and satisfaction in their struggles with ocular pathology, our daily experience is enriched with successes that have long since ceased to surprise us, from their frequency, in which the mental and other subjective, and once neglected, symptoms of our patients become the open sesame, through our therapeutic law, to the much-coveted remedy. Yet, notwithstanding the bright galaxy of cures that have crowned the prescriptions of our school in the treatment of ocular troubles, we are still prone to turn again to the "flesh-pots of Egypt," to prescribe at names, and to fall unresistingly into the treadmill of routine which so insidiously entraps the o'er busy specialist. Nature has been generous and impartial in her awards to the votaries of "Similia," requiring only loyal fealty to the personality and definite modalities with which she stamped her chosen agents, not predicated success upon special knowledge of pathology. Thus on the broad ground of our universal and catholic law of prescribing, the narrow specialist must ever come to grief at the hands of the general practitioner, if the latter chance to prove a more faithful and philosophical adherent to the great Hahnemannian law. It is because of our belief that this long and much needed journal will score its larger if not its principal success in the field of homœopathic therapeutics, that we make our début in its

columns, not with claims to any originality, but simply emphasizing by clinical facts the force and infallibility of our beautiful law in unraveling the perplexing mysteries of ocular pathology.

Mr. A., by advice of a fellow-oculist of another school, consulted me in October 1886, requesting treatment, if I could give any promise of relief, of which the patient manifested little hope. In brief, the case had the following history: He was a demi-blond, of about 40, of full habit, having enjoyed exceptionally good health all his life until about twenty months previous to his appearance at my office, when he was seized suddenly with pains in both orbits extending to the eyes, and from that time to the date of our consultation, to use his own language, he had "suffered the tortures of h— and tried everything without relief." When he came to me he was wearing +30 sphericals, which he said he had used off and on (mostly off), for a year or more; at times seeming to obtain temporary benefit from their use, but oftener finding them an annoyance if not positively painful. He had been treated to galvanism and other forms of lightning, blisters, purgatives, and narcotics, ending with sulphur baths (liquid). It seemed like monumental egotism to take a case that for nearly two years had baffled the skill of learned specialists of other schools, not having received any appreciable benefit, on the contrary growing steadily worse. Symptoms: Full heavy feeling in the whole head, temporarily relieved by pressure. Dull pain in the forehead over the eyes, worse in the evening. Shooting pains in forehead. Shooting and pressive pains in temples. Sticking and itching in both canthi, and in lids. Heaviness of lids. *Pain from internal canthi round the supra-orbital ridge to external canthi.* Treatment: Cinnabar 6th trit. was given, with orders not to repeat the dose if relief was obtained. He returned the following day, free from pain, having taken only the single powder. He had the appearance of one who believed that some subtle charm had been used to exorcise his chronic demon of pain, and that a word might break the spell and reinstate his vanquished foe. Having satisfied himself that his physician was flesh and blood, and the entire transaction within the legitimate province of the mundane, he broke the silence with the query, "Is it possible that so small a powder has done at last what all those pow-

erful drugs failed to accomplish?" He returned from day to day to express his gratitude and amazement, never requiring more than two or three more powders for slight recurrence of the original symptoms. The cure was completed within two weeks, and though two years have elapsed since his discharge, he has had no return of his unwelcome visitor.

The second case which we desire to record was that of Mr. T., a man of sanguine temperament, about 55 years of age, and weighing over two hundred pounds. He had been treated for several weeks by his family physician for paralysis of the external rectus of the right eye, with slight stiffness of the facial muscles of the same side. The attack came on suddenly without perceptible cause, and though all the remedies for which there had seemed any indication had been faithfully used, his condition remained unchanged. I applied galvanism directly over the faulty muscle for several minutes each day, giving the indicated remedy in higher potency, with the result of improving his diverging power temporarily, no permanent benefit following the treatment. Eight days after the commencement of this course, he complained of a feeling "as though the eye were being pulled back into the head by cords," and for this symptom we gave him *Parisquad.*, looking only for relief from that peculiar symptom and its attendant discomfort. Judge therefore of our surprise and gratification to find not only the pulling sensation in the eye relieved, but also the more serious paralytic condition with it. Distressing diplopia followed for a few days, after which the balance of the ocular muscles was completely restored. Galvanism and all other agents were discontinued from the time the *Parisquad.* was first administered, so that the honor of the cure cannot be divided between other remedies. Though months have passed since the cure, there have been no signs of relapse.

In studying the provings of *Parisquad.* together with the results of its use in this case, there are not lacking indications that it may prove a useful remedy in muscular asthenopia, and in many other paralytic conditions besides that of the abducens. Among the provings we find "Inability to fix the vision steadily upon anything," which symptom would seem to refer the pathogenesis to the recti muscles, as does the sensation of threads pulling the eye back into

the head, which corresponds to the insertion of these muscles. Again we find the symptom, "The eyes seem swollen, as if their orbits were too small, so that *he could not easily move the eyes.*" The drug has twitching and spasm in almost all the muscles of the body, showing interference with muscular co-ordination, often followed by heaviness, and paralytic disorders. We find "Drawing in the upper arm, sensation of heaviness in the arms." "A paralytic sensation in the finger-joints, afterward in the arm, and also in other joints." And again, "Paralytic drawing in the whole lower extremities, during rest and motion, paralytic pain in the left ankle, also in sole of left foot." This case shows the advantage of following a well-defined symptom rather than mere physiological and general indications, as we thus reach pathological conditions apparently quite remote or detached from the phenomena that lead to the selection of the remedy.

INFANTILE EXOPHTHALMOS—RECOVERY.

BY E. H. LINNELL, M.D., NORWICH, CONN.

On April 28, 1888, I was called to see a child, one week old, who had a strange appearance of one eye which alarmed the parents. I found a well-nourished and healthy-looking male infant, with slight blenorrhœa of the conjunctiva, and with marked exophthalmos and convergent strabismus of the right eye. Only the sclerotic could be seen, the eye being rolled inward and downward toward the nose to such an extent as to almost entirely conceal the iris. There was no paralysis of the ocular muscles, and movement in all directions seemed unimpaired. Upon turning the eye outward the cornea could be seen, and it appeared perfectly normal, as did also the iris and pupil. Of course in so young a child no estimate of the state of vision could be made, and an ophthalmoscopic examination was also impossible. The eyeball was very prominent, so that the lids could not be closed, giving the appearance of megalophthalmos. There was very slight conjunctivitis of both eyes, with bland muco-purulent discharge. The lids were slightly œdematous but not discolored, and the conjunctiva oculi was normal. Slight pressure upon the closed lids caused the ball to partially recede, but communicated no sensation of pulsation to the examining fingers. Upon inquiry, I learned that the child had made its entrance into the world very suddenly, with a single pain on the part of the mother, but appeared perfectly healthy in every way. Both parents and nurse were positive that the eyes were all right when the child was born, and they affirmed that the trouble was gradually developed after the second day, and without any assignable cause ; and I do not see how such an obvious deformity could have escaped their attention if it had existed. The child seemed nervous and excitable, and cried a good deal. I prescribed Puls. and a collyrium

of ten grains of borax to an ounce of water, and directed a bandage to be applied so as to exert a slight pressure upon the eye. This was soon discontinued, on account of the restlessness of the child. In three days the conjunctivitis and œdema were all gone, but the appearance of the eye was otherwise unchanged. One week later there was a decided improvement. The eye was less prominent, and also less turned. The prescription was now changed to Calc. carb. on account of constitutional symptoms, such as sweat on the head; loose, yellow, watery stools; and vomiting of curds. The eye steadily improved, and in the course of a few weeks every trace of the deformity disappeared, and the writer gained the gratitude of the parents and a reputation for skill which was gratifying, although unmerited, as the recovery was probably not dependent upon the treatment, but would have occurred spontaneously.

I can only assign as the cause of the exophthalmos a hemorrhage in the orbit, which became absorbed. If any readers of the JOURNAL have seen similar cases, or can offer a more plausible explanation of the phenomena, I hope we may hear from them.

A CASE APPARENTLY ILLUSTRATING THE IDENTITY OF CROUP AND DIPHTHERIA.

BY HORACE F. IVINS, M.D., PHILADELPHIA, PA.

Within the past few years much has been written and said both for and against the theory of the unity of diphtheria and croup. Each side has had physicians of the highest authority to advance its interests, and each party has worked zealously to bring to light every argument and every proof to make victory its own. Each has failed, however, to convince its opponents and the medical profession at large, either that these two affections are the same or that they are different. Therefore it seems to me that no theory may be advanced which shall satisfy the profession, consequently we must look to the observations and experiences of many practitioners for a solution of this vexed question.

It is for this reason that I offer my mite in presenting the history of the following case, which seems to have some bearing upon this subject, and which appears to present some evidence serving to add its share to the unity theory. Were it of the opposite character, that of favoring the dual nature of the affection (s?), I should be equally pleased to present the case, for it seems to me that our desire should be, not to support a certain theory at all times to the exclusion of its opposite, as in a debating society, but to present cases favoring both standpoints, if such cases occur. This should be done that one of the theories may finally be made a well-established truth, at the same time relegating the other to the archives of the past.

While treating cases in the Homœopathic Dispensary of Germantown (Philadelphia), on January 8, 1886, Dr. H. K. Mansfield asked me to see Mamie C., aged ten years. The doctor had seen her the day previous, at which time she had a cough, with hoarseness and painful deglutition, the right side of the throat being the more annoying. The tonsils were swollen and bright red. For these symptoms Belladonna was prescribed, followed by relief to the tonsillar affection.

When I saw her, the laryngoscopic mirror did not present, on its surface, a picture in which any membrane was represented, but it did show considerable inflammation and swelling of the left side of the larynx, particularly about the ventricular band. This appearance, however, scarcely seemed to explain the hoarseness and stridor (mild in degree) which were present. Phosphorus was given, supposing the condition to be—as it most probably was at that time—a mild acute laryngitis.

On the 15th there was no improvement; in fact, the temperature had run up to 101° F., and the pulse to 108 beats per minute. Part of the left ventricular band was then seen to be covered by a membranous deposit; the dyspnœa was not apparently greater than before, but there was aphonia. Here was a case of membranous laryngitis, but was it diphtheritic or croupous? This much was probable, however—that in a short time tracheotomy might be indicated.

Kali bichromicum φ was mixed with boiling water, the steam from which the patient was ordered to inhale. Spongia and Hepar were given internally, these to be taken in alternation. It was now learned that “six weeks ago Mamie and her brother and little sister were ill with diphtheria.” As they had all recovered promptly, it is to be presumed that the disease was of a mild type.

After the discovery of the membrane our patient was put to bed and received medicines according to existing indications. On the 20th of the month (January) the little sister, two years old, presented symptoms of a beginning diphtheritic croup, which terminated in death two days later. Mamie grew rapidly worse from that time. The brother was sent to his grandmother's when the two-year-old first complained, but this precaution did not save him, for on the 25th, membrane made its appearance on the tonsils, and soon a croupy cough heralded the invasion of the vocal organ. Tracheotomy was proposed, but rejected. On the morn-

ing of February 12 he died asphyxiated, after the membrane had nearly disappeared from the pharynx.

On the 2d of February Mamie's dyspnœa was so marked that I received a telegram, with the request that I operate, if necessary. The dyspnœa was threatening, the voice suppressed, thirst great, restlessness intense. At times there would be marked relief from the dyspnœa, but respiration was markedly stenotic at all times. There was no membrane either in the nose or in the pharynx. The larynx was well coated, however, with the pseudo-membrane, and the mucous lining was much swollen, so that with the laryngoscope it seemed almost impossible for the child to have enough space for the entrance of life-giving air for many minutes. As a result of this examination it was decided to open the trachea as speedily as possible. Ether was given, and with the assistance of Drs. J. R. and H. K. Mansfield, the trachea was opened, low, at 10:30 P.M.

The relief was prompt and complete. She slept fairly well during the night. Although improvement was slow, she had so far recovered by the 19th of the month—seventeen days after the tracheotomy—that the tube was removed. The wound soon healed and without the assistance of stitches. Until the 22d of March, long after the tube had been removed, the temperature kept up to 99° or 99.5° F., after that it became natural and remained so. The recovery was a complete one. Mamie is now well and stout without a trace of any recognizable disorder.

Here we have the history of a case of pseudo-membranous laryngitis in which, during the whole course of the disease, there was no detected membrane except in the larynx; yet without known or ascertained history of exposure, other than at home, a brother and sister each died after the development of well-marked membrane in the pharynx, and, presumably, in the larynx.

What inference have we to draw from this? It is true that this diphtheria might have developed from the non-hygienic surroundings which were present, but does it not look very much as though we had here a missing link in the incompleated chain which may some time serve to bind these affections together.

PARESIS OF INFERIOR RECTUS MUSCLE.*

BY CHAS. C. BOYLE, M.D., NEW YORK CITY.

The history of the following case is peculiar, inasmuch as the trouble made its appearance suddenly, in the beginning of the ninth month of pregnancy, accompanied by an increasing albuminuria, with a marked diminution of the excretion of urea :

The patient first showed signs of kidney complication by the appearance of albumen in the urine, about the beginning of the eighth month ; this being earlier than it did with her first child, which was about the middle of the ninth month. But in the first pregnancy it did not increase rapidly, and labor went on to full term without any trouble. In the second pregnancy the albumen appeared earlier, and increased more rapidly, with a corresponding diminishing excretion of urea, until the latter part of the eighth month, when the patient was suddenly, and without any premonitory symptoms, seized while in the street with a confusion in the head, momentary loss of vision, followed by double vision, due to a paresis of the inferior rectus muscle of the right eye. The images were one above the other, and to correct the diplopia it was necessary for her to hold the head downward and a little to the right. When this complication made its appearance, especially as it was accompanied by an increasing albuminuria and diminution of the quantity of urea, it was considered time to interfere and bring on labor. This was accomplished twenty days sooner than the time expected. The labor was quite rapid, and she was delivered in four hours of a living child. During this stage, and afterward, no signs of uræmic poisoning made their appearance. The albumen did not disappear for six months afterwards.

* Read before the Hom. Med. Soc. of the State of New York.

It might be mentioned, in connection with the other troubles, that a small quantity of sugar, varying from one per cent. to one-tenth per cent., was found two years previous to last pregnancy, supposed to be due to nervous shock, resulting from death of first child. This symptom of diabetes was present from the time of its first appearance until after the last pregnancy, when it disappeared about the same time that the albumen did. Traces of sugar can, however, be detected at times, after a nervous strain.

Now the question arises, what was the cause of this paresis? Was it due to a general weakened condition of the system, brought on by the combined influences at work, or was it due to uræmic poisoning? I do not believe it was dependent upon the first, as I think it would have been more gradual in showing itself, and affected the other muscles, especially the internal rectus. But I am inclined to think that uræmia had something to do with it, as it made its appearance suddenly without warning, thus resembling the convulsions of pregnancy due to uræmia. Why only this muscle and none of the others controlled by the third nerve should be involved cannot be explained. The patient was under the late Dr. Liebold's care for about three weeks, up to the time of his death. He was very much interested in the case, and said he had never seen one exactly like it appearing under the same circumstances.

After his death, the case came under my care and treatment. On testing the vision it was found to be $\frac{2}{20}$ with slight difficulty, which was made $\frac{2}{20}$ by + 144 cylindrical glass. The patient still says her vision is not so sharp as formerly. The appearance of the fundus was normal from the beginning of the attack to the end of the trouble. On examining the double images it was found that it took a prism of 9° base downward to correct the diplopia. The treatment pursued was a systematic exercise of the affected muscle, by using the weakest prism, with base downward, which would refract the rays of light entering the eye to such a degree that the inferior rectus muscle, by making an extra effort, could rotate the eyeball downward sufficiently to correct the diplopia. As improvement took place, and the double vision became less, the stronger prisms were gradually replaced by

weaker ones, until the diplopia disappeared. After which the base of the prism was reversed, being placed upwards, thus causing double vision to appear, which the eye would immediately correct if the prism was not too strong, by exerting the inferior rectus and rotating the eye downward. In using prisms with base upward the weaker were gradually exchanged for the stronger, until the eye could overcome 4° . In combination with the above, electricity was used (galvanic current), together with internal remedies, as Gelsemium and Aurum mur. But the improvement was slow until I gave Merc. cor. for the kidneys, which I considered the probable cause. Under this remedy the improvement was much more rapid than it had hitherto been. Of course time was an important factor, as we all know; kidney troubles of this kind will frequently recover of themselves after the cause has been removed. The patient also drank, during the treatment, matzoon and Underwood Spring water.

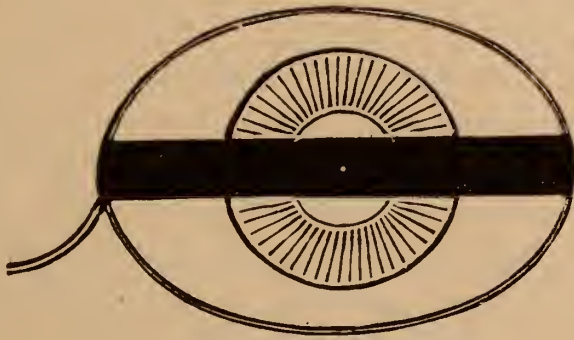
AN ACCOUNT OF AN INGENIOUS PATIENT, CONTAINING A PRACTICAL TREATMENT FOR CONICAL CORNEA.

BY CHAS. H. HELFRICH, M.D., NEW YORK CITY.

The patient, a lad of seventeen, employed as a clerk, presented himself to me for treatment on the 6th inst. He had consulted several oculists during the past few years, but did not submit to any of the operative procedures they had advised. An examination disclosed the presence of a conical cornea in each eye, which he said had existed three years. They were centrally located over the pupil, with their summits slightly opaque. The pupils were somewhat dilated, though they responded immediately to light, and the tension of both eyes was normal. His vision was $\frac{15}{200}$, without any material improvement by concave glasses or the stenopaic slit.

From careful observation of facts, quite accidental in their occurrence, he devised an ingenious plan of overcoming the myopia and irregular astigmatism produced by the disease. Considering his lack of knowledge, both of the anatomy of the eye and the optical principles governing such a loss of vision, his success in surmounting the difficulties was not only singular and worthy of interest, but its publication may prove of practical benefit. His attention was at first excited on noticing the marked improvement in his vision at a time when his finger was accidentally placed horizontally in front of the eye. The device consisted of a plane glass (he evidently had no other refractive error) with a horizontal black stripe across its center; the width being

sufficient to shut off those rays of light which would naturally impinge on the conical portion of the cornea, yet admitted enough rays through the pupil, above and below, to enable him to see well enough to carry on his duties. I append a diagram showing the mechanism. With these glasses set in eyeglass frames his vision was improved from $\frac{15}{200}$ to $\frac{20}{80}$. He had several pair of glasses, the width of the black stripe varying in each to conform presumably to the varying size of the pupil when exposed to very strong or weaker lights. He sought by preference a darkened room, for the reason that he secured a maximum amount of dilatation of the pupil, under which circumstance he could use the widest stripe and so most effectually cover the offend-



ing portion of the cornea, and yet have a large number of rays of light pass through the uncovered portion of the pupil.

Another fact he observed was that pressure on the eyeball improved his vision (by flattening the cornea), and though he endeavored to make use of the information by wearing his eyeglass as near to the eye as possible, he could not produce the same amount of improvement he could obtain by direct pressure with his finger.

It is not essential that the stripe be carried over the entire length of the glass; in fact, it would be less conspicuous if it were only prolonged enough toward either side of the pupil to accommodate the ordinary excursions of the eyeball.

The device is preferable to the stenopaic slit, inasmuch as it allows of a larger field and better vision, as the rays pass through a normal portion of the cornea; is less cumbersome and unsightly, more easily adjustable, and less expensive.

ATRESIA OF THE EXTERNAL AUDITORY MEATUS, WITH PURULENT INFLAMMATION OF THE MIDDLE EAR. *

BY F. PARK LEWIS, M.D., BUFFALO, N. Y.

The following case is sufficiently interesting and unusual to warrant placing it on record.

In December, 1887, a feeble little child, with a wan, pinched face, was brought to my clinic at the Buffalo City Eye and Ear Dispensary. Early in the previous summer—she then being a year old, so my notes read—she had a severe and protracted attack of cholera infantum. She recovered with reduced vitality, and with an excoriation involving the concha and external meatus of the left ear. This rapidly spread until the entire inner surface of the inner auricle became involved. Whether it was of the nature of pemphigus or not I could not learn, but at the end of three months the parts had grown firmly together, completely obliterating the external auditory meatus.

For nearly a month before she was brought to my clinic the child would frequently scream for an hour at a time, apparently in great agony. The slightest pressure over the smooth surface, where the external opening had been, would cause her to shrink and cry with pain. It was evident that fluid was pent within the ear, and the child was at once sent to the Homœopathic Hospital for operation.

After placing her under the influence of chloroform, a probe was passed over the surface of the bone till the meatus was found, and then forced through the skin. Immediately a little stream of offensive pus spurted through the opening. The cicatricial tissue was then divided by a crucial incision and dissected back till the

* Read by title before the Hom. Med. Soc. of the State of New York.

meatus was completely exposed. To cover the denuded tissue a flap was taken from the lobe and stitched over the fresh surface on its inferior aspect, and the new tissue transplanted in such a way as to leave a full but completely protected external opening. The meatus had, of course, been previously thoroughly cleansed, and the whole was now carefully washed with a sublimate solution—one to one thousand—dusted with iodoform, and bandaged. Notwithstanding a continued purulent discharge from the middle ear, healing occurred readily, and the little patient was sent home at the end of a week.

It was not long, however, before a tendency to contraction again manifested itself. Pledgets of absorbent cotton were then forced into the orifice and kept constantly in position for three months. There had been a slight otorrhœa, and it was not until this had been controlled by such constitutional remedies as Sulphur and Calcareæ that the lumen of the meatus could be maintained. At the end of that time the child had grown strong and well, with the membrana tympani restored, and having a very good auricle and open meatus.

THE INDICATIONS FOR SENEGA * AND ONOS- MODIUM IN AFFECTIONS OF THE OCULAR MUSCLES.

BY GEO. S. NORTON, M.D.

About a year ago, while investigating the physiological action of certain drugs upon the eye, my attention was called to Senega (Seneca snake-root); and an examination of the symptoms produced by both large and small doses showed that it had a more marked affinity to the eye than was generally supposed. It is true that this action was to a limited extent recognized many years ago by German oculists, who employed it quite extensively at one time in scrofulous inflammations of the conjunctiva, cornea, etc. Senega, from its irritant action upon mucous membranes, would naturally be considered of value in conjunctival diseases, but its sphere is much wider than this, as I trust will be proven as we proceed. In this paper, however, it is not my purpose to dwell upon its usefulness in inflammatory conditions of the eye, in which my experience has nothing particularly new to offer, but I would bring it into prominence as a remedy for asthenopic disturbances, and so add to our armamentarium in this direction.

In studying Senega and its active principle Saponine, one first notes its physiological action upon the muscles in general, and then marks with surprise the elaborate array of symptoms produced upon the eye in its provings. Nothnagel and Rossbach write, regarding the physiological action

* The portion of this paper relating to Senega was read before the Hom. Med. Soc. of the State of New York.

of Saponine, as follows :* “ According to Pelikass and H. Köhlen a 5 per cent. solution injected under the skin of a frog primarily paralyzes the contiguous sensitive and motor nerves, eventually killing them. Thus the spinal cord is paralyzed. If, on the other hand, the spinal cord is brought under the influence of Saponine first, then, after tonic spasm has ensued, central paralysis appears first and gradually advances to the periphery. All the muscles of the body also become paralyzed, the striped ones of the extremities and the heart muscle, as well as the smooth intestinal muscles, so that its introduction into the stomach rapidly causes the muscular coat of the stomach and bowels to lose its sensibility, and the heart ceases to beat, being paralyzed in diastole. At the spot of injection the capillaries (and according to circumstances the larger arterial trunks also) contract, and a local stasis of the circulation consequently results. In warm-blooded animals also, the muscles of the body and peripheral nerves become paralyzed—especially those which are nearest to the spot where the injection has been made. About the heart the retarding as well as the accelerating nerves, and the muscles of the heart, become paralyzed, and at the same time blood pressure and respiration fall.”

Turning now to the provings of Senega, recorded by Allen,† we find the following verified head and eye symptoms: “ Confused feeling in the head. Slight vertigo before the eyes. Reeling sensation in the head. *Dullness of the head, with pressure and weakness of the eyes.* Dullness in the head. The head feels heavy. A sort of aching pain in the head, in the sinciput and occiput, not increased by pressure; this headache came on every day, and was especially felt when sitting in a warm room; it was accompanied with a pressure in the eyes, which did not bear touch. Pressing pain in the forehead and in the orbits, after dinner, especially in the left side of the head; relieved

* Treatise on Materia Medica, p. 784, translation.

† Encyclopedia of Pure Materia Medica, vol. viii. p. 587.

in the open air. Headache more toward the forehead. Pressure in both temples. When looking at an object intently or permanently the eyes tremble and run. Weakness of the eyes, with slight burning and lachrymation. Weakness of the eyes. Weakness of the eyes when reading, with lachrymation upon exerting them too much. Burning in the eyes on reading or writing. Burning and pressure in the eyes, toward evening. Aching pain over orbits. Burning in the lids on writing. Secretion of mucus, especially during night. Jerking in eyelids. Drawing and pressure in the eyeballs, with diminution of visual power. Pressure in eyeballs. Weakness of sight and flickering before the eyes when reading, obliging me to wipe them often. Objects look shaded. While reading the eyes feel dazzled; this makes reading difficult. Flickering before the eyes and weakness of sight, when continuing to read or write. When walking toward the setting sun he seemed to see another smaller sun hover below the other, assuming a somewhat oval shape when looking down, disappearing on bending the head backward and on closing the eye. Flickering and running together of letters when reading."

In addition to the above the following clinical symptoms have been relieved, while under the influence of this drug: Dull aching pain in and behind the eyes, especially left. Hot feeling in the lids from over-use of the eyes. Sharp pain through the eyes. Headache coming and going in the temple, worse after using the eyes in the afternoon; ameliorated in the open air. On using the eyes a weak, tired feeling in and behind them, with some photophobia. Severe headache in various portions of the head, with hyperphoria. Constant aching pain in the outer canthus of the left eye, aggravated on using the eyes; twitching of left lids. Dull pain behind the eyes after reading. Heavy weight on the top of head and over the eyes, with aching behind the eyes in a case of hyperphoria. Pain behind the ears, and dull heavy pain and aching in the eyes, with a desire to rub and press upon them; worse on using eyes in evening; hyperphoria.

With the above physiological action and verified symptomatology of Senega before us, we are now prepared to consider its clinical application. My deductions, relative to its value in affections of the ocular muscles, are derived from my experience in its use in over one hundred and fifty cases in private practice, besides a large number in my hospital clinic. It seems to be more indicated in muscular weakness than in muscular spasm; even in paralysis of the muscles it should be thought of, particularly paralysis of the superior oblique or superior rectus. Dr. T. F. Allen* reports a most brilliant cure of a case of paresis of the left oculo-motor nerve with paralysis of the superior rectus, under the administration of Senega. In two or three cases of paresis or paralysis of the superior oblique muscle, I have observed beneficial results follow the use of this drug. Surely it should be one of the first remedies to be considered in paralysis of these muscles, and possibly also of the other ocular muscles.

It is, however, in *weakness* of the recti and oblique muscles that Senega will be most frequently required, particularly in the so-called *hyperphoria*, in which there is a difference in height of the two eyes. That this difference in height not unfrequently exists, and is the cause of asthenopic symptoms, is becoming more apparent day by day as we more carefully test the relative strength of the ocular muscles. Illustrative of the action of Senega in hyperphoria is the following case :

Mrs. S., æt. 60, came to me on Oct. 16, complaining of considerable pain behind the ears, with aching and dull, heavy pain in the eyes, causing a desire to constantly rub and press them, worse in the evening or after using the eyes. This condition has been present more or less for years. Test with Stevens phorometer showed : L. Hyperphoria 1°. Systematic exercise of the superior recti with prisms, and the employment of galvanism was recommended, and Senega ^{1x} was given internally. She did not again appear until Nov. 7, having had no exercise of the muscles nor galvanism applied. She then stated that the medi-

* Transactions Hom. Med. Soc. State of New York., v. 10. p. 194.

cine had wholly relieved all the aching and other symptoms from which she had suffered, and that the eyes had not felt as well in years. A careful examination could detect no difference in the height of the eyes.

This, it is true, might be considered an exceptional case, for it is my practice in hyperphoria of less than 2° * to endeavor to tone up the muscles by systematic exercise with prisms, at the same time giving Senega or some other drug internally. Therefore, although several cases of hyperphoria are found upon my records, in which a cure had resulted from this "mixed" treatment, still it can not be said how much influence the drug had exerted in effecting the cure. In some cases the use of Senega has seemed to be of no avail. It therefore must not be considered a specific in hyperphoria, but only a remedy of the first importance in this form of muscular weakness, when symptomatically indicated. The cures have been more frequently observed in left hyperphoria, but this may have been only a coincidence. When Senega is required the patient will usually complain of *dull, tired, aching, or pressing pains in, around, or behind the eyes, with smarting and burning in the eyes, always worse after any use*, in connection with which some catarrhal symptoms of the conjunctiva may be observed. The patient will also usually complain of a feeling of *dullness or headache throughout the whole head*, not centered in any particular portion; commonly relieved somewhat in the open air.

The sphere of usefulness of Senega is not, however, to be limited to weakness of the superior or inferior recti or oblique muscles, as it has also been of service in weakness of the internal and external recti muscles, when called for by the characteristic indications already given.

* In higher degrees of hyperphoria tenotomy of the muscles is at once advised, as well as in the lesser degrees if the exercise does not prove satisfactory. Benefit has also been observed in these cases, when objections have been raised to the operation, by decentering the glasses worn, or by combination with prisms.

ONOSMODIUM VIRGINIANUM.

In Dec. 1886, after an experience of a year and a half in the use of this drug, I wrote an article for the *N. Am. Journal of Homœopathy* upon "Onosmodium Virginianum ; a Remedy for Headache." A further experience of over two years has only served to confirm my previous statements and increase the value of the drug in my estimation as a remedy for asthenopic troubles.

Onosmodium or "False gromwell" is a perennial plant, which grows wild throughout this country, mostly in rich soil, and attains the height of from one to two feet. "It is clothed with harsh, but appressed short bristles, oblong leaves, and lance-awl-shaped lobes of narrow corolla sparingly bristly outside" (Gray).

A proving of the drug was first made by Dr. W. E. Green, and a study of its physiological action, as brought out by these provings, indicates that it exercises its main force upon the nervous system as a *depressant of nerve function*. This is shown not only by the mental and head symptoms, but especially by its effects upon the general muscular system. Here we find a tired, weak, weary feeling in both the upper and lower extremities ; while in the lower extremities, mostly below the knees, is experienced a feeling of numbness, tremulousness of the legs, and a disturbance of the gait in walking, with a sensation of insecurity in the step. The patient is uneasy and desires to move about, though hardly dares to trust himself to do so, owing to the weakness and unsteadiness of the muscles.

Turning now to its special action upon the mind, head, and eyes, we find the following :

Upon the *mind* it produces a dazed feeling—confusion of thought and ideas—dullness of intelligence—complete listlessness and apathy of the mind, with inability to concentrate thought or remember what has been said.

Among the *head* symptoms are to be found : Heavy feeling of the head. Pains in the left side of the head and over the left eye, extending around the left side to the back of the head and neck. Pains of a dull, heavy character.

Pains in the left temple and left frontal eminence. Dull, heavy pain in the occiput, pressing upward, with dizzy sensations. Pains commencing in right frontal eminence and extending to the left. Darting, throbbing pain in the left temple. Dull pain in the mastoid. Aggravation by motion; relief by eating and sleep.

Upon the *eyes*, it causes heaviness and dullness, as from loss of sleep. Heaviness of the lids. Dull, heavy pains and soreness of the eyeballs. Dull aching in the upper part of the balls. Tense drawing and tired feeling in the ocular muscles. Pains in and over the left eye. Pain in the upper portion of the left orbit, with a feeling of expansion. Vision blurred. Optic disk hyperæmic and retinal vessels engorged; worse in the left eye.

Having now stated the physiological action of *Onosmodium* upon the head and eye, I will endeavor, briefly, to formulate my conclusions as to its clinical application, as derived from my experience in its use in over four hundred cases, nearly all of which have been in private practice. From this large number of cases the four following are selected, simply as illustrative of its sphere of action:

CASE I.—Miss C., aged 23, had been suffering much of the time for three years from headache. The pain was especially in the occiput, which felt "sore and stiff," often extending down the spine, which was somewhat sensitive to touch. Together with this, at times, was a dull, aching pain in the left side of the head, occasionally with darting pains through the eyes. She also complained of weakness of the eyes, with aching in them; could not read more than a page or two without a stiff, strained feeling in the eyes, especially the left. Some dizziness in the morning, when she was usually worse. Examination revealed simple astigmatism in one eye and mixed astigmatism in the other. After correction by proper glasses, she experienced relief from all her pains for about six months, when, from over-use of the eyes, they began to return. Under *Onosmodium*^{1x} the symptoms were at once relieved. Since which time (now about eight months) it has been used with benefit whenever a tendency to recurrence has been observed.

CASE II.—Mrs. D., consulted me December 9, 1885, on the recommendation of Dr. W. N. Guernsey, for an excessive myopia and some weakness of the internal recti, with severe headache. She had suffered all the fall from much headache, and two weeks before she came to me it had been most intense; since which time there had been a constant "dull, stupid ache" in the right occiput and in the corresponding eye; worse when she was tired, or from coughing, or any sudden motion. There was a little vertigo, and strained feeling in the right eye. Under Onosmodium^{3x} all the symptoms were quickly relieved, and six months afterward she reported that she had had only two headaches, and those were after great fatigue in travel and sight-seeing.

CASE III.—Mrs. D., four months before applying for treatment, suffered from an attack of congestion to the head, with double vision which continued one week, since which time there had been a constant pressure on the top of the head and in occiput, ameliorated upon lying down or when in the open air, but aggravated upon motion or on rising suddenly. With this was dizziness upon turning to the left. Test with prisms showed esophoria. Examination of the refraction revealed compound hyperopic astigmatism in the right eye and hyperopia in the left, together with presbyopia in both. The error in refraction had been almost wholly corrected, so that only a slight change was made in the right lens. These glasses were worn three weeks with great satisfaction, but still the above symptoms of pressure persisted. Onosmodium^{1x} was then prescribed; under which the head sensations slowly but surely diminished within from three to four weeks.

CASE IV.—Mrs. S., æt. 59, had been complaining for six months of much pain in the head and eyes. There was an almost constant feeling of fullness in the head, and much of the time quite severe pain in different portions of the head, more often in the occiput and on the left side. The conjunctivæ were irritable and red, while the eyes felt strained and as if sand were under the lids. There was a moderate discharge. All the symptoms were aggravated upon reading even a few minutes. Occasional vertigo was present. Hyperopia and presbyopia were found, with exophoria in accommodation, though no deviation of optic axes could be detected at the distance. No change was made in her glasses. Onosmodium^{1x} was given internally. Great relief

was at once experienced and continued for some three months, when her general health failed so that she was compelled to go South, though even then there was no severe return of headaches.

Not only from an examination of these cases, but from a study of all the others, it has been found that the *headaches*, in which *Onosmodium* has proved most beneficial, are particularly marked in the *occipital region*. The *pain is dull aching* in character and is not usually confined to the occiput, but *extends down the back of the neck or over one side of the head, generally the left*. Accompanying this headache there is usually more or less *dizziness*, and sometimes nausea. Associated with this headache, either preceding or following it, we often find *pain over or in the corresponding eye, with a stiff, strained sensation in the eye*, aggravated by reading or use at near vision.

The asthenopic symptoms, of which the patients complain, vary widely, but are more commonly described as *heaviness of the eyes, stiff, strained, lame feeling in the eyeballs, or dull headache over the eye, generally worse in or over the left eye*, and always aggravated from use of the eyes for near vision; in addition to which, and illustrative of the various sensations of which the patients complain, the following verified symptoms are given: Pain over and behind the eyes, aggravated by use and in the morning; sensation of a stick under the right lid; dull, aching pain in the left eye, worse at the menses; strained and sandy feeling in the eyes; watery feeling at night on awaking; eyes burn and water after reading, followed by aching in the eyes, worse in the evening; dull, heavy pain in the eyes on reading; cutting pain in the left eye; aching, swollen sensation in and around the left eye, occasionally sharp toward evening; sore pain in eyes, increasing to a severe ache; letters blur on reading; heaviness of the lids; heavy feeling in the forehead, in the brain; headache over eyes in the forehead; headache in the eyes and temples, worse on the left side, and from any motion; headache every week on top of head, relieved by pressure on head and eyes, worse at menses; pain over the

left eye: headache over the left eye and in the internal canthus, extending to back of head; headache over eyes in the forehead from overwork; headache over the eyes every forenoon; uncomfortable sensation in vertex and back of head; headache all over the head, but especially in the occiput, worse in the morning and upon moving around, with a creaking sensation in neck upon turning the head; headache in the occiput and behind the eyes.

Vertigo, in a more or less marked degree, is almost invariably present when this drug is called for.

The form of weakness of the ocular muscles, in which this drug may be employed with benefit, has not been limited to one or more muscles, as it has proven of service in the accommodative as well as in the different varieties of muscular asthenopia. The characteristic head and eye symptoms must be the only guide in its selection.

Summary.—Senega is indicated in weakness, even paralysis, of the ocular muscles, especially in the so-called hyperphoria, when the patient complains of dull, tired, aching, pressing pains in the eyes or throughout the whole head, with smarting and burning in the eyes, always worse after using them, and often accompanied by catarrhal symptoms of the conjunctiva. In this relation compare Ruta grav., especially of service in accommodative asthenopia, with dull headache over the eyes after reading or use in near vision. Argentum nitr. is also an important remedy in accommodative asthenopia with symptoms similar to Senega, though the dull pressure throughout the head is not usually as marked as in the latter.

Onosmodium is the remedy for any form of asthenopia in which there is dull, aching pain in the occipital region, extending down the back of the neck or over one side of the head, generally the left; or when there is a dull headache over the left eye, with a stiff, strained, lame feeling in the eyeballs; accompanying which is usually vertigo. Gelsemium and Calcareo phos. are both indicated in asthenopia with occipital headache, but neither one has

the marked symptoms about the left eye and the vertigo so characteristic of *Onosmodium*.

In conclusion I desire to define my position, that there may be no misunderstanding relative to my recommendation of drugs in asthenopic troubles. We specialists tend most strongly to skepticism as to the action of drugs upon the eye. In the first place I recognize the fact that it is necessary to neutralize the anomaly of refraction, which gives rise to the asthenopic disturbance, before relief can be obtained. Again, there is no doubt in my mind that weakness of the ocular muscles, especially of the internal and external recti, is far more often amenable to operative or mechanical interference than to drug action. Still it is not unfrequent to find cases in which annoying asthenopic symptoms will persist even after the correction of the error in refraction or of the apparent muscular defect; also cases in which, for some reason or other, it is impossible to make a tenotomy or carry out systematic exercise, or in which alleviation by prisms may not be deemed advisable. It is in these that the administration of drugs which act upon the ocular muscles may prove of decided advantage. Again, it is a question if the results are not more brilliant and the relief more rapid when remedies are prescribed together with glasses, exercise, and galvanism, in many asthenopic affections, than when we rely upon the mechanical measures alone.

SEVERE INJURY TO THE AUDITORY APPARATUS FOLLOWING AN ATTEMPT AT REMOVAL OF A SUPPOSED FOREIGN BODY.

BY CHAS. DEADY, M.D., NEW YORK CITY.

To the uninitiated nothing seems easier than the extraction of a foreign body from the ear. The conditions present are, a hole in the head containing an object to be removed: what can be simpler than to grasp it with an appropriate instrument and—remove it. The impregnability of this position is so apparent to the average mind that no patient need lack treatment for this affliction if he will but consent to be operated upon by the many officious people who love best to meddle with that which they do not understand. Authorities are united in the recommendation that *no instrument whatever* should be used in the ear for this purpose, except in the rarest instances and under peculiar conditions; yet there are probably few aurists who have not seen cases of this kind in which serious injury has resulted from ill-advised attempts to remove a body which would have occasioned far less disturbance if allowed to remain.

The patient—and not infrequently the physician as well—seems to labor under the delusion that when a substance has entered the ear it must be removed immediately, or some terrible catastrophe will result; if the object be animate, or of a material which will easily enlarge by the absorption of moisture, this may be necessary; but in the majority of cases such is not the fact; in almost all of them the speediest and most certain method of accomplishing

the desired result is by the use of the syringe, which should at least be given a thorough trial before resorting to instrumental interference.

But we must go farther back than this to a point which is of vital importance: *The first thing to be done is to ascertain, beyond peradventure, that a foreign body is present*, and to those who have the education of medical students in charge, we would say that this is a point upon which too much emphasis cannot be placed.

These remarks have been suggested by a case in the writer's experience, in which the results of carelessness and ignorance were most lamentable, endangering life at the time, and resulting in a deformity which is probably permanent.

G—C—, a young woman aged about twenty, residing in a suburban village, was awakened in the night by a disagreeable sensation in her left ear. Assuming a sitting posture in bed she at first rubbed the offending member, but, this proving abortive, finally removed a pin from her night-dress, and, grasping it at the point, inserted the head into the meatus externus. When about to remove it from the ear, it suddenly slipped from her fingers and she was unable to find it again. Calling her sister, who lay by her side, she told her that she had dropped a pin into her ear, and after a further unsuccessful hunt with the aid of a light, the whole household was aroused. The patient now began to complain of the sensations produced by the movements of the pin, and was at once taken to the village doctor, who after a brief examination announced that he saw it, and, grasping an instrument, at once made a dive for it. Not being successful at once, he continued with the diving process, until from pain, mental strain, and fright from the sight of the blood, which was plentiful, the patient fainted. In the forenoon of the following day the "efforts for relief" were resumed,—as before, without result. Later in the day chloroform was administered, and having no fear of producing pain to bother him, the operator probably did some exhaustive work, judging from subsequent appearances. Still no success, although the physician "could see the head of the pin shine" deep in the canal.

By this time the condition of the patient was so deplorable that the family refused to have anything more done at that time.

After twenty-four hours' rest the patient seemed much better, and by the advice of friends was taken to a "specialist." He also was able to see the shining pin-head, and succeeded in grasping it with the forceps repeatedly, the instrument slipping off, however, at each attempt. After two hours' manipulation he decided that the pin must have become bent to a spiral form by the repeated efforts for its removal, and he also proposed the use of chloroform for its extraction.

The friends of the patient retired for deliberation, and, more outside counsel being obtained, the case was brought to the writer.

Status Præsens.—The patient has been a stout, healthy country girl, but is now in an alarming condition. The face is waxy, the eyes sunken and with dark rings around them, the cheeks and temples hollow, the lips dry, cracked, and bloodless ; the left side of the face is completely paralyzed—considerable fever is present, and the girl is so weak and dizzy that she is supported by her father in order that the necessary examination may be made.

The external meatus is full of clotted blood, which is carefully washed away, and a speculum inserted. The examination by reflected light reveals a most sanguinary state of affairs ; the external meatus at its auricular extremity is denuded of its integument in spots ; deeper in, it is almost entirely raw ; the drumhead is chiefly remarkable for its absence ; no vestige of the auditory ossicles remains ; the shining spot which has represented the pin-head is still plainly visible, but we no longer wonder at the futility of all efforts for its removal ; it is a portion of the skull-bone which has been entirely laid bare, and which reflects a shining point of light ; for three days they have been trying to draw the patient's head through the auditory canal—without success.

The patient and her sister were carefully questioned : Where did the pin come from ?—From the night-dress. Was there more than one pin ?—No. The top button was off, and the neck was pinned together ; otherwise the patient was sure she had no pins about her person. Her sister was certain that she had no pins about her. Was the bed searched ?—Yes. Was a pin found ?—The father and mother said No ; the sister said she had found *one*, but she knew it could not be *the* one, because her sister was telling of the movements of the pin in her ear when she found it.

Conclusions.—There was no pin in the ear when examined.

There never had been anything whatever in the ear ; the patient had dropped the pin in the bed in the darkness, and the aural sensations were either entirely imaginary or due to the cause which first awakened her.

A pledget of cotton saturated with an infusion of calendula was put into the ear, the patient was put to bed, and Aconite φ given in water. After careful treatment extending over several weeks the patient recovered her general health, but there remained absolute deafness in the left ear and complete paralysis of the facial nerve of the left side, and these conditions persisted during the whole period she was under observation.

Here we have the spectacle of two physicians, one of them a "specialist," who allow their judgment to be biased by the statements of a frightened girl, and on the strength of a bright spot deep in the auditory canal, supposed to be the head of a pin, but which in the first place was probably the triangular reflection from the drumhead, proceed to systematically "clean out" the entire auditory cavity in the most reckless manner. The most remarkable thing in the whole business is that the patient did not lose her life as a result of shock ; her condition when first seen by the writer was so bad that the prognosis given was very guarded, and only the greatest care averted such an unfortunate termination.

REVIEWS.

THE EAR AND ITS DISEASES. By SAMUEL SEXTON, M.D.
Edited by CHRISTOPHER J. COLLES, M.D. New York : William
Wood & Company. 1888.

This work is a valuable contribution to otological science, in the fact that it represents in a large measure the results of the actual experience of the author, who has evidently kept records to some purpose during the long period covered by his practice. As he states in the preface, the subject is not supposed to be covered in full, the internal ear being entirely omitted ; neither is it intended for students, many elementary points necessary to the beginner not being considered ; but the specialist or the general practitioner, who desires to be posted on the advances in his art, will be well repaid for the time spent in its perusal.

The work consists of four general divisions, of which Part One is devoted to the anatomy and physiology of the tympanic membrane and the parts external to it. The second division considers the various causes of aural disease in all their relations, while Part Third treats of "Wounds, Injuries, and Diseases of the Ear, and their Treatment," including the anatomy of the middle ear.

The writer takes exception to the theory of Helmholtz that the tension of the drumhead depends on the tightness of the ligaments and the elastic tension of the tensor tympani muscle, considering that this is rather attained by the auricle and the outward parts of the ear, the skin, muscles, fascia, etc., and states that he has personally demonstrated by dissection that the so-called pricking up of the ears by the action of the temporal fascia actually renders the hearing more acute by increasing the tension of the tympanic membrane. In the common barnyard fowl, traction applied to the muscular tissue behind the ear can be seen to make the membrane tense. A number of cases are given in which impaired hearing is improved by various manipulations of the auricle.

In Chapter IV. the author feels constrained to doubt the correctness of Helmholtz's theory of sound-sensation, leaning rather to Professor Rutherford's hypothesis that sound vibrations are transformed into nerve vibrations, and so produce in the brain the sensation we call sound ; that instead of the analysis of complex vibrations in the cochlea and the appropriation of sympathetic vibrations by various divisions of the sentient fibers, the hairs of all its auditory cells vibrate to every tone ; that, in fact, simple and complex sounds are received and conveyed in an analogous manner to that which we find in the telephone.

As the result of observations in "1800 cases of aural disease in which the symptoms of reflex irritation from diseased teeth were especially severe," the author concludes that the irritation created in the gums of infants during dentition is often responsible for hyperæmia in the ears and purulent otitis ; if the symptoms are not marked, the child may become deaf and dumb before attention is directed to the ear. Again, some of the most protracted and intractable cases of acute suppurative inflammation of the middle ear that the writer has ever seen have been associated with and due to the cutting of wisdom teeth.

Aural disease resulting from bathing is very fully treated ; Russian, Turkish, salt and fresh water baths ; the nasal douche, post-nasal syringe, snuffing water, and wetting the hair, are all considered. Statistics are given from the author's practice as to the class of persons most frequently affected, and the forms of disease usually appearing under these conditions.

The subject of othæmatomata is discussed at considerable length, and very interestingly. The author dissents from the opinion of many authorities, that the disease is frequently idiopathic, and expresses himself as entertaining no doubt "as to the universal and immediate precedence of trauma in every instance."

Respecting the greater frequency of left-sided othæmatoma, the suggestion is offered that this is possibly due to some vaso-motor disturbance occurring more commonly on this side, and attention is drawn to the irregularity of the distribution of the sympathetic nerves ; "while an unvarying connection is maintained with the right side through the superior cervical ganglion, a comparatively imperfect and varying connection exists on the left side—the left superior cardiac nerve and the inferior cardiac branch of the pneumogastric only occasionally affording communication between the

cardiac plexus and the left superior cervical ganglion." Twenty cases are given from practice, with a number of illustrations of the resulting deformity.

In the chapter upon wounds and injuries of the drumhead and drum, the possible serious consequences of even a playful box upon the ear are strongly presented. Attention is called to the fact that a very light blow, if delivered in the proper direction to cause compression of the air in the external meatus, may result in a rupture of the drumhead; and while this may be of slight import in a healthy person, from the probability of rapid repair, the tendency to suppuration in the catarrhal diathesis may produce serious results. This subject is also presented in its medico-legal aspect.

In the same chapter will be found a minute account of an accident which occurred at the United States Ordnance Proving Ground at Sandy Hook, where a shell weighing 585 lbs., and containing 27 lbs. of powder, exploded in the midst of a group of officers and men. The effects of the concussion upon the ears of the survivors are given in full; plates are introduced showing the relative positions of the patients at the time of the explosion, and cuts of the drumheads are presented, defining the situation and extent of the injury in each case. Numerous other cases are cited in illustration of the effects on the drumhead resulting from external violence.

The author's experience with the operation for excision of the drumhead and ossicles is given, and is a valuable addition to the record of this branch of aural surgery. In twenty-nine cases the operation was made for the relief of chronic purulent disease; of these, fifteen were cured, thirteen improved, and one passed from observation. Besides the removal of the suppurative condition, there occurred a marked improvement in hearing in eleven cases. Eight cases of chronic catarrhal otitis were operated; in seven of these the hearing power was largely increased. Vertigo and tinnitus were removed or alleviated in all cases.

Part Fourth consists of a series of miscellaneous articles; the subjects of the education of school children with defective hearing, and the aural effects of high atmospheric pressure, being considered among others.

The volume is well printed on good paper and tastily bound.

Fifty-nine illustrations are interspersed throughout the text, of which thirty-two are original, including four diagrams.

D.

THE DISEASES OF THE EAR AND THEIR TREATMENT. By ARTHUR HARTMANN, M.D., Berlin.—Translated from the Third German Edition by JAMES ERSKINE, M.A., M.B. With Forty-two Illustrations. New York: G. P. Putnam's Sons. 1887.

This is a very concise yet comprehensive work of 256 pages. Within this comparatively limited space will be found a succinct and accurate description of the morbid conditions pertaining to the auditory apparatus, written in a terse, readable style which reflects credit upon the translator, whose work affords no hint of the German origin of his text. An introductory chapter gives a short account of the history of otology from the time of Hippocrates. The body of the work is divided into eleven chapters, as follows: I., Diagnostic; II., Symptomatology; III., Frequency, Ætiology, and Prophylaxis; IV., General Therapeutics; V., Diseases of the Auricle; VI., Diseases of the External Meatus; VII., Diseases of the Membrana Tympani; VIII., Diseases of the Middle Ear; IX., Diseases of the Internal Ear; X., Traumatic Lesions, Neoplasms, and Malformations; XI., Deaf-mutism.

While the size of the work forbids extended discussion, the author's ability at condensation and clearness of diction enables him to give the reader an excellent idea of the subjects treated, and justifies him in offering it as a practical treatise for the general practitioner, who will, as a result of its methodical arrangement, find the information of which he is in search with the least possible waste of time.

The various methods of examination and manipulation are carefully though briefly explained in the opening chapter, which also contains illustrations of many of the necessary instruments and of the author's diagrammatic method of recording tests made with the tuning-fork. The second and third chapters are devoted to the analysis of the anomalies of audition, some statistical information relative to the frequency of various forms of aural disease,

its common causes and the general methods of prevention, while the following chapter is taken up with the enumeration of the local and constitutional remedial measures which are of general utility, closing with a description of some of the mechanical appliances for the relief of deafness, including the audiphone and dentaphone.

A short resumé of the anatomy of the part concerned precedes each of the chapters on disease; the pathology is up to date, as is the treatment, according to the school of the author, although in chronic suppuration of the middle ear we find no mention of the use of hydrogen peroxide, which has proved so valuable for the purposes of cleansing and disinfection in this form of disease.

In the chapter on deaf-mutism, statistics are introduced from the author's monograph on the subject. A list of the formulæ recommended, a copious general index, and an index of authorities consulted, conclude the book.

The illustrations, forty-two in number, are well executed, the type and paper excellent, and the volume is cordially commended to the notice of the student and general physician. D.

THE TWELVE TISSUE REMEDIES OF SCHÜSSLER, comprising the Theory, Therapeutical Application, Materia Medica, and a Complete Repertory of these Remedies. Arranged and compiled by WILLIAM BOERICKE, M.D., and WILLIS A. DEWEY, M.D. Philadelphia: F. E. Boericke. 1888. Octavo, pp. 303.

The "Twelve Tissue Remedies" have come more and more prominently in use by the medical profession within the past two or three years, until now they have become, with some, almost polychrests. Even in diseases of the eye, ear, and throat they have frequently proved serviceable, especially Ferr. phos., Calc. phos., Kali mur., Natr. mur., Sil., and Calc. sulph. It is, therefore, with pleasure that we recommend this work by Profs. Boericke and Dewey to all interested in the study of these remedies. It is the most complete and most satisfactory work published upon this subject.

The book is divided into four parts, as follows : Part I., Introduction to the Theory, and General Sketch of the Twelve Tissue Remedies ; Part II., Materia Medica of the Twelve Tissue Remedies ; Part III., Therapeutical Application of the Twelve Tissue Remedies ; Part IV., Repertory. N.

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TWO EYE CASES.

BY C. F. STERLING, M.D., DETROIT, MICHIGAN.

The following cases, while presenting nothing new, were of considerable interest to me during their treatment, and may possibly be so to some of the readers of THE JOURNAL:

On January 3, 1887, I was requested by a medical friend of mine to visit Mrs. S. for a painful eye. On entering the room I was startled at the appearance presented by the patient, although I had been informed by my friend that as a result of rheumatic gout she had become greatly deformed, and for a long time previously had denied every one, except her immediate attendants, access to her room, and it was with exceeding difficulty he had secured her consent to my visit.

On examination of the case, I found a small central ulcer in the cornea of the left eye, exquisitely painful, and accompanied by the usual symptoms of photophobia, circum-corneal redness, etc.

Being doubtful as to the coexistence of iritis, I instilled atropine and cocaine, and prescribed Mercurius. I found, as the atropine began its action, no evidence of iritic complication, either in the shape of adhesions, modified color (a blue-eyed patient), or any of the typical signs. Feeling free from anxiety as to iritic involvement, I discontinued the use of the atropine, and changed to eserine, for its reputed value in solutions of corneal continuity. I do not intend to describe the detailed treatment of this case, but summarize it by saying that an obstinate and painful iritis supervened on the corneal ulcer; following the iritis came a pronounced cyclitis, so that I had, in this patient, a kerato-irido-

cyclitis. Treatment of whatever kind seemed to have little effect. Atropine produced such marked toxic symptoms I felt unwilling to use it. Eserine simply favored the iritic synechiæ. Bandaging and heat gave the most relief. All drugs seeming to possess any relation to the case were used as faithfully and conscientiously as I knew how, but, so far as I could see, with little or no effect.

This state of things continued for about three months, until one day in March, making my usual visit, I found the eye absolutely free from pain and tenderness, and simply the ulcerous depression, with a slight peri-corneal injection. From that day to this she has not had, so far as I know, the slightest return of any eye trouble.

The salient features of this case, that gave me the peculiar interest I felt in it, were as follows: The patient (about forty years of age) from being one of the most beautiful of women—a noted belle—had become almost a repulsive object from the distortion produced by arthritis deformans. Confined to her bed, her knees drawn up nearly to her chin, her fingers twisted out of all shape, and the joints filled with gouty nodosities, the only voluntary movements remaining to her being that of her arms and head, she was indeed a pitiable object, and the victim of suffering enough, both mental and physical, to have been spared the added anguish of a severe and intractable eye affection. The intense pain which she had endured for years had induced a resort to morphine, so that at the time I attended her she was taking hypodermatically from twelve to fifteen grains daily; her ordinary dose being one-half grain every two hours, and resorted to more frequently during aggravations, though the size of the single dose was rarely exceeded. The prolonged use of opium had, as may be easily imagined, produced a very obstinate and sluggish condition of the bowels, to correct which she drank bottled lager, the only thing that seemed able to produce any movement of the intestines, and of this she consumed about six pint bottles daily. So far as I could learn this was the only nutriment (?) she took, and though I tried hard to bring about a return to more suitable food, I do not believe, in the three months or

more during which I was in attendance, she consumed two pounds of solid food, while liquid food, such as soups, milk, etc., she refused utterly. Saturated as she was with opium, it was no wonder that medicines had but little action, while, at the same time, she remained so sensitive to the effects of atropia, duboisia, etc., that I was forced to discontinue them. As before said, the inflammatory process in the eye ceased very suddenly, and, I believe, has never returned. One noticeable feature during the continuance of the case was a marked alternation in the intensity of the symptoms between the eye affection and her general condition. When she would suffer some exacerbation of her arthritic pains the eye symptoms would mitigate, to resume their virulence when the other abated. How this woman lived was, and still remains, a puzzle to me.

Another case was as follows : Mrs. C., nearly eighty years of age, has suffered from recurrent iridocyclitis in both eyes for a number of years. In the fall of 1885 she had a peculiarly violent attack, accompanied with intense pains of a lightning-like suddenness in the left maxillary articulation. From August until December she was under the care of my predecessor, Dr. McGuire, who failed to give her any relief, until in sheer despair he suggested a hypodermatic injection of cocaine in the left temporal region, when, presto, the whole condition subsided for months ! After that she came under my care, and suffered from attacks of varying intensity, generally controlled in a few days without much difficulty.

Late in December, 1887, or early in January, 1888, she had one of her usual attacks, of rather more than ordinary violence. I was requested to see her one morning during this seizure, some hours earlier than I had contemplated making my visit, as she was suffering unusual pain. On arriving I learned she had been taken a few hours previously with an exceeding aggravation, which none of the measures in use seemed to control. The right eye was the one affected at this time. Perhaps I should have stated previously that she is excessively myopic, with partial cataract in each eye, and this, with the posterior synechiæ from old attacks, had made her vision very poor at best, though she had vision sufficient to get about with comfortably, and even read

fairly coarse print. I found, on examination, that all perception of light was gone, and that the eye, which had heretofore been of diminished tension, was as hard as a stone, in other words, an acute glaucoma (*fulminans*?) had supervened. I prepared to make an iridectomy that afternoon, but when I reached the house I found the pain somewhat less, and a diminution in tension, so I postponed operating until the next day. Improvement still continuing, I further postponed it, meanwhile giving her such treatment as seemed to me best.

The outcome of the case was a restoration to the condition present before the attack, vision coming back in a measure, though the eye remained irritable and painful.

Fearing, however, a renewal of the glaucomatous attack, I recommended an iridectomy, which I shortly afterward attempted, under cocaine. The corneal incision was made without difficulty, and I had introduced the iris forceps, seizing the iris, when she gave a scream, threw up her hand, knocking mine with such violence that the forceps flew half across the room. I thought the eye was done for, but when I had quieted her, found that merely a portion of the iris was prolapsed, and fortunately not severed from its ciliary attachment. Reassuring her, and taking precautions against a repetition of the accident, I carefully seized the prolapsed portion, and drawing it gently out, completed the iridectomy without farther complication. There was little or no reaction, the eye healed beautifully, the iridectomy proved an excellent one, vision was restored to about its former value, and since then that eye has given no further trouble, the iritic attacks having entirely ceased.

The left eye, however, continues every little while to inflame, and become painful and irritable, but no arguments will induce her to have the operation repeated on it. This patient also has a very pronounced "rheumatic" history, and I am strongly inclined to believe there is a gouty element in it, although I have never demonstrated the presence of lithates or urates in excess.

These two cases have possessed some interest for me aside from their clinical history, as exemplifying certain conclusions drawn by Mr. Hutchinson in his "Bowman" lecture, delivered before the Ophthalmological Society of the United Kingdom November 13, 1884, on the relation of

certain diseases of the eye to gout. He takes the ground that rheumatism pure and simple is seldom a factor in the production of iritis; that in many of the so-called cases of rheumatic iritis a careful investigation into the family history would show a gouty tendency; that gout, inherited or acquired, is far more common than generally believed; that a gouty constitution may exist without any typical gouty attacks; that it is potent in the production of disease, and remarkably hereditary, and that in relation to the multifiform diseases of the eye it must have a domain, and that it is an important one. He classifies many forms of eye affections that are commonly met with, a large proportion being diseases of the uveal tract, and, citing illustrative cases, shows clearly their relation to a gouty diathesis. The above two cases showing a remarkable analogy to some of his classifications, I have thought might possess for the readers of *THE JOURNAL* who are familiar with his views, some slight interest.

LUPUS LARYNGIS.*

BY J. MONTFORT SCHLEY, M.D., NEW YORK.

Lupus is a comparatively rare disease in this latitude. In a large dispensary clinic devoted to skin disease, for a space of two years I have met with but one case of lupus of the face. In this case, though the pharynx and larynx were examined, no trace of a diseased condition could be found. The patient was eventually lost sight of. In Vienna I had opportunity to examine patients in all stages of this malady. Some of these cases had been under observation for years without developing any laryngeal symptoms, though the cutaneous affection was steadily progressing and invading new healthy parts. One or two of these patients have reminded me strongly of the one whose history I here present.

Mrs. M. J., aged forty-four, was sent to me for examination of her cutaneous, as well as laryngeal trouble. The diagnosis of lupus was easy at a distance. The face was intensely red ; I noticed marked eversion of the lower lip, due to cicatricial contracture, pinched, eaten appearance of nose, marked ectropion, some destruction of ears, and their remaining parts bound down to the cranium, with nearly complete atresia of external auditory canal. The cutis appeared shining and tightly drawn, and in places old nodules had made their appearance on diseased ground, and still further, where several nodules had coalesced, a superficial ulceration existed, covered at times by a scab.

Running in various directions, and at different angles, super-

* Read before the American Institute of Homœopathy, June, 1889. A pathological specimen was shown to illustrate the case.

ficial cicatrices were noticed. The disease had extended to the hairy scalp, which in places was denuded of hair, and far down under chin. The only other place where a lupus patch was found was near the left wrist on inner aspect. No examination of genitals was made. Dr. J. E. Taylor read a paper at the last meeting of the American Gynæcological Society on Esthiomene, or lupus of the vulva. (Galen mentioned that Hippocrates called lupus, herpes esthiomenos, hence the name that Dr. T. has unearthed.) There are seven cases cited. Two were cured, two relieved, two unrelieved, and one died. The treatment was local, the parts being excised or destroyed. No mention was made of the existence of lupus elsewhere on the body.

In my patient it was with great difficulty that her mouth could be opened, ulceration at each angle making it exceedingly painful, and producing some hæmorrhage. The saliva dribbled constantly from the left angle, as she was unable to bring her lips together. Her teeth were plainly visible, and a part of the gums, after the greatest effort had been made to bring her lips in contact. The gums had receded markedly from her front teeth, which were quite movable in their sockets. This condition of her gums existed both in the upper and lower jaw. The tongue could only be protruded a short distance beyond the teeth; it was very red, its surface uneven (hilly), and to the touch very hard. It felt very much like the tongue of a lady now under my care for acne syphilitica, where the connective tissue had apparently increased much, but no ulceration was detected, either beneath its edges or on its dorsum. On depressing the tongue the first thing that struck the eye was the rather shortened, but broad and thickened, uvula. Its surface was uneven, looking more like a raspberry than anything else to which I may compare it. The whole structure of the soft palate had undergone much thickening, and down toward the root of the tongue, along the anterior pillar, the hypertrophy seemed to increase. The color of the parts was of a dark hue, such as we meet in the hypertrophic form of catarrh of the pharynx. The parts were sluggish in their movements, but not anæsthetic.

The posterior wall of the pharynx was much thickened, which, with the thickening of the remaining portion of the pharynx, encroached decidedly upon its lumen. I found no ulceration, or destruction of the soft parts along the edge of the posterior pillar.

I detected an eroded spot of an eighth of an inch or more in length on the posterior wall of the pharynx, and an old superficial cicatrix. The naso-pharyngeal space was thickened and catarrhally affected.

Laryngoscopy was difficult owing to the patient's inability to open her mouth, the difficulty in drawing forth the tongue, etc., but after one or two careful efforts we succeeded in obtaining a partial view of the lower pharynx and larynx.

The base of the tongue seemed hypertrophied, and the glandular structure was much augmented in size. The posterior wall of the pharynx down to the entrance of œsophagus presented only a thickened appearance. The epiglottis presented the most peculiar aspect of any of the structures so far seen. It bore the closest resemblance to the palpebral conjunctiva in a case of long standing trachoma. It was essentially granular on its surface. It was very broad antero-posteriorly. It had diminished to one-third in height and appeared stunted. There were evidences of ulceration or cicatrices. The aryteno-epiglottidean folds were infiltrated and thickened to four times their natural size. This increase was more marked on the right side ; covering the false and true cords completely, so that nothing of them could be seen. The left aryteno-epiglottidean fold only was smaller, and to this fact, no doubt, she owed her continuance of life, for if both had been equally swollen, she would speedily have died of asphyxia. On the left side, the false and true cords were partially visible. The former was thickened and chronically congested ; the latter was thickened and of a brownish hue.

Neither the epiglottis nor the aryteno-epiglottic folds presented any indications of œdema, but had more the appearance of infiltration (hyperplasia), and an infiltration, from its aspect, in which the connective tissue mostly was involved. Below the cords I could see the trachea very much congested.

Some one may inquire why I made this diagnosis of lupus? I would answer that I had an undoubted case of it affecting the skin in close proximity, and that it could not be reasonably supposed to be syphilitic, phthisical, or cancerous. Had it not been one of the four morbid conditions, I should certainly have been at a loss in making a correct diagnosis.

There still exists some doubt with specialists as to how to classify occasional pathological conditions found in the respiratory tract. I shall speak of this further on when citing some so-called cases of lupus. I felt justified in excluding syphilis in my case, from the absence of all syphilitic history, absence of enlarged epitrochlear and inguinal glands; absence of any perforation of soft or hard palate due to specific virus, or destruction of the soft parts by ulceration. The latter, I think, would certainly have occurred, had the diseased condition in this case been due entirely to syphilis.

As for phthisis I would say that I have never seen destruction of laryngeal parts without there being marked infiltration of lung tissue. This was totally wanting in my case. It is true that in the right apex there was slight dulness and mucous râles of small character, but this was found only a short while before death, and may have been due to secondary deposit of lupus in the lungs. Unfortunately this could not be verified at the autopsy, as we were permitted only to open the trachea.

The patient had been suffering from her disease some twelve or fifteen years when she came under my notice. This length of time, with absence of constitutional symptoms; absence of much local discomfort; no pain in swallowing, and the appearance of the parts made the elimination of cancer easy.

The principal complaint of the patient was the great laryngeal dyspnoea. At night she would be seized with the most violent suffocating attacks, due perhaps in part to her mouth-breathing and the spasms of the larynx. In eating, the patient had little difficulty, relishing fluid or solid nourishment with equal impunity.

She died eventually from asphyxia, due to the gradual closing of the larynx, increased perhaps at the last by œdema. She would not consent to tracheotomy.

If you will examine the specimen (here presented) you will notice how small the lumen is, and it is remarkable that earlier symptoms of carbonic acid poisoning did not

develop. If we examine this specimen closely we will notice, macroscopically, points about it that would make it differ from syphilis or phthisis.

In hunting up the record of cancer I have found mention of some ten or twelve reliable ones. There are others mentioned, but their history, conditions of parts, etc., make me doubt the accuracy of the diagnosis, even though made by specialists. Thus Türck mentioned five cases (*Zeitschrift der Gesellschaft d. aertze zu wier*, 59), Tobold two cases, (*Kehokopfrankheiten*); Ziemssen, *Encyclopedia Med.* vol. 7, p. 848; Grossman (*Ther. Med. Zeitung*, 1877); Leffert's (*American Journal of Med. Science*, April, 1878); Casin, lupus of soft palate and isthmus faucium, scrofulide of face, the lupoid affection apparently cured by an attack of erysipelas. In this case there was partial destruction of soft palate and tonsil by ulceration. Child lymphatic. From the description of the case as I read it, I should fancy the diagnosis to be incorrect (*Annales des mal. de l'oreille et du larynx*); Laboultere, pharyng. tubercal. in lupus (*Medical Press and Circular*, London, June, 1880); Beringier, *Annales des maladies de l'oreille et du larynx*, June, 1878).

In nearly all these cases the malady was confined to the supra-glottic structures; they were nearly all females, and in all but one cutaneous lesions existed.

In M. Tiemesin's case, the diagnosis of lupus was made, because local treatment of varying strengths and internal anti-syphilitic medication was of no avail. Of the many writers on throat affections we find, with the exception of Mackenzie and Cohen, in addition to those just mentioned, no mention of lupus. Mackenzie has seen two cases; Cohen has not apparently seen such a case. Fauret, Schrötter, Stoerck, Mandl, Lenox Browne and others make no mention of it.

A query may be made as to what this malady was that Ziemssen in his case describes, and, for want of a better diagnosis, calls lupus. After eliminating the two or three affections for which it might be mistaken, there seemed to remain nothing else. I do not think that we have as yet

in medical writings an undoubted case of lupus affecting the mucous membrane of pharynx or larynx alone, without co-affection of the cutis. Should this case of Ziemssen not have been lupus, phthisis, syphilis, or cancerous, what was it?

Now that we are forever hunting for the new or unheard of, it seems not improbable (to me) that some affection of the pharynx or larynx may occasionally be found, which has not as yet received the description it deserves. Laryngology has had little added to it since Türck's time. In the July number of the *Archives of Laryngology* we find four cases of lupus (?) cited,—three by Dr. Knight, of Boston, and one by Dr. Asche, of this city. In two of the former's cases, the diagnosis may remain doubtful; the case of the latter is very doubtful, as the patient was cured of her pharyngeal and laryngeal symptoms, and the parts returned to a healthy state.

The French claim that lupus has a scrofulous origin, and put it down as a scrofulide. If this be so, there will be no end of confusion brought into a subject of which we know so little. Should it be as the French assert, then some of the cases in which doubt now exists could certainly be put down as lupus. If scrofula and lupus be closely allied, then we may certainly have it affecting mucous membrane before we notice any external manifestation; or we go farther, and say that the cutis may never show any morbid process and that the internal trouble may nevertheless be undoubtedly lupus.

Hornolle in 1875 describes this affection from a French standpoint, in an article entitled "Des scrofulides graves de la muqueuse Bucco pharyngienne."

ANISOMETROPIA.

BY E. H. LINNELL, M.D., NORWICH, CONN.

The general custom in the treatment of anisometropia is in accord with the teaching of Donders, viz., to fit the better eye, giving the same glass to the other. This is usually good practice, and yields satisfactory results in the majority of cases, but there are many exceptions to this rule, as indeed Donders admitted. No dogmatic rule can be laid down to govern all cases. Routine practice is slovenly practice. He is the truly successful practitioner who studies his cases individually, and who prescribes for individuals rather than for diseases, and it is the unusual and exceptional cases that test his skill and establish his reputation. This statement is pre-eminently true in regard to the treatment of the class of cases which is the subject of this paper. Such cases demand the exercise of much thought and judgment, and the careful physician is well repaid for painstaking and accurate correction of errors of refraction by the satisfaction and comfort which the patient derives therefrom.

Anisometropia offers many and varied problems, and is a most interesting study. I hope the following *résumé* of the subject suggested by reading my clinical records may not prove uninteresting, and if not containing any new ideas, perhaps a recapitulation of rules and maxims, which experience has found to be trustworthy, may not prove unprofitable.

One eye is usually subservient to the other. The one which receives the most distinct retinal impression with the

least effort of accommodation takes the pre-eminence, and yet the weaker eye is often helpful, even though its retinal image is blurred and indistinct. The first thing, then, to determine, is which eye possesses the greater visual acuity and the lesser error of refraction. The difficulty is to equalize and harmonize the diverse retinal images, as convex glasses increase and concave diminish, the size of the image. It is important to ascertain whether binocular vision exists, and the great desideratum is to maintain and extend the range of it, and to develop it when it does not previously exist. I will not enumerate the various forms of anisometropia, but they may be conveniently grouped as follows:

First. When there is binocular vision.

Second. When there is vision with either eye alternately.

Third. When there is constant exclusion of one eye.

Slight differences of refraction, that is, when the same variety of ametropia, either H. or M., exists in both eyes, with simply a difference in degree, are quite common, and as a rule, occasion no inconvenience.

Vision is equally good with either eye, and as the difference in size and distinctness of the retinal images is slight, it occasions no annoyance, and binocular vision is retained. Nothing is gained usually in prescribing different glasses for the two eyes, and the one which suits the eye with the lesser amount of H. or M. is usually sufficient and satisfactory for the other. Exceptionally, however, in sensitive individuals, very slight differences in the degree of refraction are annoying, and even though vision may be equally good in the two eyes, and the degree of ametropia moderate, it is more satisfactory to give a different glass to each eye, as in the following case:

Mrs. S., aged forty-eight. $V.=\frac{1}{10}$ diff. O.U.Hm.=.75D. $V=\frac{1}{10}$ easily. Has been using +1.50 D^s. O.U. for near work, but they are no longer satisfactory. With +2.00 D^s.O.U. vision seems easier with the left eye than with the right, but +2.00 D^s.O.S. and + 2.25 D^s.O.D. give perfect satisfaction.

Here the use of atropine would undoubtedly have revealed a difference in the degree of H. in the two eyes, although there was no manifest anisometropia.

In cases exhibiting a higher degree of H. or M., with only a moderate difference between the two eyes, the visual acuity is still often equal, binocular vision is preserved; and the glass which suits the better eye is still sufficient for both, as in the case of

J. T. He has never seen clearly. Has tried many glasses without relief. O.D.V. = $\frac{10}{70}$. Hm. = 4.50 D.V. = $\frac{10}{10}$. O.S.V. = $\frac{10}{70}$. Hm. = 6.75 D.V. = $\frac{10}{10}$. He received +4.50 D^s. for distance, and +7.50 D^s. for near vision.

When there is a decided difference in sight, one eye must always remain subordinate to the other. The rule here is to determine whether binocular vision exists at any distance, and if so to preserve and extend it. Usually the better eye is the one with the less anomaly of refraction. The one which receives distinct retinal images with the lesser effort of accommodation being given the preference. Here also it is seldom advisable to accurately correct the ametropia of each eye separately, as the individual has become accustomed to the dissimilarity of the retinal images, and the effort to correct them is confusing. We know that a + glass increases, and a - glass diminishes the size of the retinal images, and this difference in size caused by the correcting glass more than compensates for the increased distinctness of the visual impressions, and occasions confusion and sometimes diplopia. Hence we may generally give the best satisfaction by observing the general rule of giving the glass which suits the better eye. Here, the subordinate eye aids vision to a considerable extent, even though it receives but imperfect and indistinct visual impressions.

Alice W. has asthenopia. She cannot use her eyes with any comfort for more than a few minutes at a time. O.D.V. = $\frac{10}{10}$. Hm. = 1.00. D.V. = same. V.O.S. = $\frac{10}{100}$. Hm. = 3.50 D.V. = $\frac{10}{10}$ diff. R +1.25 D^s. O.U. for near work, which is satisfactory.

Sometimes in cases of this sort it is desirable to partially correct the anisometropia. The comfort of the patient is the only guide. When, as occasionally happens, the eye with the greater refractive anomaly has the better vision, we must fit that eye, and give a correspondingly weaker glass for the better eye.

C. P. C., aged sixty-seven, has immature cataract in his right eye. O.D.V. = $\frac{1}{6}$. M = 1.25 D.V. = $\frac{1}{3}$ diff. With +2.25 D^s. reads Jaeger No. 3. O.S.V. = $\frac{1}{3}$. Hm. = 2.25 D.V. = $\frac{1}{15}$. With +5.00 D^s. reads Jaeger No. 1. R. O.D. +2.25 D^s. O.S. +5.00 D^s. for near work, with which he has binocular vision.

In the following case binocular vision, both with and without glasses, was wanting. The patient used her right eye altogether for distance, and the left altogether for near work.

O.D.V. = $\frac{1}{4}$. With -1.75 D^c. ax. 180°, V. = $\frac{1}{2}$ diff. O.S.V. = $\frac{1}{10}$. M. = 3.50 D.V. = $\frac{1}{2}$ diff. Addition of -1.00 D^c. ax. 15°, V. = $\frac{1}{10}$, and lines perfect. Needs -2.25 D^s. for piano playing, etc. R. O.D. -1.75 D^c. ax. 180°. O.S. -2.25 D^s. C -1.00 D^c. ax. 15°.

It is to be hoped that binocular vision may be regained by the use of these glasses for a given distance.

When one eye is E. and the other H. or M., as the case may be, it is usually unnecessary to give glasses for distance, although in rare instances, in which nervous symptoms arise in consequence of the effort to harmonize the retinal images, relief may be obtained by giving a glass for only one eye. In such cases I believe the refractive anomaly of the affected eye will be found to be of only moderate degree, and the asymmetry of the retinal impressions slight; consequently more effort to harmonize them is made than if the dissimilarity were greater. Thus it is apparent how, in highly nervous, sensitive temperaments, correcting the monocular ametropia relieves nervous strain without causing distortion or diplopia by creating a considerable difference in size and outline of two distinct retinal images. When the error of refraction is more con-

siderable, the retinal image in the affected eye, being fainter and more indistinct, is less annoying, and there is therefore less effort at fusion, and its correction is not helpful.

The foregoing remarks are also applicable to near vision in youthful individuals, but when presbyopia becomes a factor in the case the problem is very different. Here our aim should be as far as practicable to give each eye the glass which permits distinct vision at the reading distance, with an equal amount of accommodation. When presbyopia exists with unilateral myopia, we may either carry the far point of the myopic eye to the near point of the presbyopic eye, or, when the myopia is of moderate degree with considerable presbyopia, we may give such a convex glass to the latter as will bring its near point to the far point of the myopic eye. Again, the myopia and presbyopia may be of equal degree, so that the respective far and near points will coincide without glasses, or a weak convex glass may be required for the presbyopic eye, and also a weak concave glass for the myopic eye, in order to give distinct vision to each at the same point. When presbyopia exists with unilateral hypermetropia, it is seldom advisable to vary the strength of the lenses for near work.

When one eye is hypermetropic and the other myopic, we would hardly expect to secure binocular vision at a distance, but we might secure it for a given interval by a judicious selection of glasses. The hypermetropic eye would naturally be used for distant, and the myopic for near vision, and in the majority of cases this practice is more satisfactory than to attempt to cultivate binocular vision where it never existed naturally. Still, as in the class of cases we have just been discussing, by giving the hypermetropic eye a lens which would enable it to see without accommodation at the far point of the myopic eye, the two eyes might be used together anterior to that point, but the dissimilarity of the retinal images under such conditions would be so great as to prevent binocular vision, unless in very exceptional cases.

The same rules are applicable to astigmatism, only in

unilateral astigmatism the indications for its correction are more frequent than in unilateral myopia or hypermetropia. My custom is usually, first, to correct the astigmatism in whole or part as seems desirable, in one or both eyes, as the case may be, and then to be governed by the same considerations in the correction of the remaining anomaly as though astigmatism did not exist.

My endeavor in all cases is to give distinct vision to both eyes at a given distance suited to the patient's age, occupation, etc., with the same accommodative effort. But I realize that the attainment of scientific accuracy is not always practicable, and theoretical deductions are worthless, unless experience proves them to be correct. The comfort and highest degree of usefulness of the patient must be the aim of our endeavors, and this end is not attained by the blind following of dogmatic rules, but by the thoughtful and careful study of individual cases. The following cases are appended by way of illustrating the foregoing remarks, and as examples of my method in exceptional instances. It is not worth while to give examples of the more frequent varieties of anisometropia, in which Donders' rule holds good.

S. E. B. H. right eye, Ah. left, with commencing Pr. O.D.V. = $\frac{10}{10}$. Hm. = 1.00 D. O.S.V. = $\frac{10}{10}$. +.75 D^c. ax. 90°, V. = $\frac{10}{10}$, and lines perfect. Previous examination under atropine. O.D.H. = 1.50 D. He required + 1.50 D^s. to read comfortably with right eye, but with left could read comfortably at same point with +.75 D^s. in addition to the cylinder. He received + 1.25 D^s. O.D. and +.75 D^s. \bigcirc +.75 D^c. ax. 90° O. S., which were entirely satisfactory. + 1.25 D^s. would have been too strong for the left eye, and +.75 D^s. too weak for the right, but with the combination prescribed he can use eyes together comfortably.

Mrs. S., aged seventy. Mixed astig. O. D. Simple myopia O. S. Practically no accommodation at her age. Sight had always been very imperfect, and she had never been able to find any glasses to help her. With the myopic eye, vision was very imperfect, even with correcting lenses, but she received a glass for the right eye which brought her near point to the far point of the

left, in addition to correcting her astigmatism, and enabled her to read Sn. 5 easily without accommodation, and the myopic eye, although the right was imperfect, aided somewhat. The record is as follows:

O. D. V. = $\frac{10}{60}$. With -3.00 D.^c, ax. 20° Γ $+1.50$ D.^c ax. 110° , V. = $\frac{10}{15}$. O. S. V. = $\frac{10}{100}$. M. = 3.50 . D. V. = counts letters of $\frac{10}{10}$, but cannot read lower than $\frac{10}{100}$. I gave her $+3.50$ D.^s, in addition to cylinders, viz. $+ .50$ D.^s, $\ominus + 4.50$ D.^c, ax. 110° right eye, and a plane glass left eye, for reading and near work.

Miss W. The better eye is the one with greater refractive anomaly. Eyes used alternately. O. S. V. = $\frac{10}{100}$. With $+ .75$ D.^s $\ominus + .75$ D.^c V. = $\frac{10}{70}$. O. D. V. = $\frac{10}{200}$. With -4.50 D.^s, $\ominus -2.50$ D.^c, ax. 110° V. $\frac{10}{50}$. She received cylinders to correct the astigmatism of each eye, and in addition -3.25 D.^s O. D. for constant use. The left eye was used for distance and -3.25 D. O. D. carried the far point to 36 in., a convenient distance for ordinary work and enabling her to read or sew with very little effort of accommodation.

Miss S. consulted me for paresis of accommodation of left eye, with mydriasis and twitching of the lids. There had been difficulty in using the eyes for some time, and at first the pupil of the left eye was widely dilated. When she consulted me there was very little difference in the size of the pupils, but the left did not contract in strong light, and the accommodation was deficient. Examination showed the following condition of refraction: O. D. Hm. = $.50$ D. V. = $\frac{20}{20}$. O. S. M. = 1.25 D. V. = $\frac{20}{20}$. She received no glasses, but Agar. 6x four times a day speedily brought a restoration of accommodation, so that she was able to use her eyes without inconvenience, but probably alternately. No exact test of binocular vision was made.

In the following case it seemed desirable to give a stronger spherical glass for the more ametropic eye without entirely correcting the Hm.

Mr. C., aged about forty-five, has compound hyperopic astigmatism, with normal vision each eye. O. D. V. = $\frac{20}{30}$. With $+1.00$ D.^s $\ominus + .50$ D.^c, ax. 90° , V. = $\frac{20}{20}$, and lines perfect. O. S. V. = $\frac{20}{100}$ diff. With $+2.25$ D.^s $\ominus + .25$ D.^c, ax. 20° , V. = $\frac{20}{20}$ diff. and lines perfect. The following prescription for near work gave unqualified satisfaction for reading, and gained me several other patients through

his recommendation: viz., O. D. $+1.25$ D.^s $\subset +.50$ D.^c, ax. 90°
O. S. $+2.00$ D.^s $\subset +.25$ D.^c, ax. 15° .

In the following case it was not thought advisable to give different spherical glasses for the two eyes, inasmuch as the difference in refraction was so considerable that binocular vision could not be obtained, and the difference in size, etc., of the retinal images would be confusing and annoying.

L. H., aged sixteen; Compound myopic astigmatism. O. D. V. $=\frac{2}{100}$. M. $=2.25$. D. V. $=\frac{2}{30}$ diff.; addition of -1.00 D.^c, ax. 180° ; V. $=\frac{2}{20}$. O. S. V. $=\frac{4}{20}$, M. $=8.00$. D. V. $=\frac{2}{30}$; with addition of, -1.25 D.^c, ax. 180° , V. $=\frac{2}{20}$ diff. He received cylinders as above, with -2.25 D.^s both eyes.

The following case, on the contrary, shows what a great degree of ametropia may at times be corrected with satisfactory effect:

Mrs. S. Aphakia O. S. Cataracta dura immatura et myopia O. D. After removing cataract from left eye she required $+8.00$ D. for distance. Her myopia in right eye $=4.50$ D., and with this glass vision $=\frac{2}{70}$. She preferred this combination of glasses to any other, and has worn them satisfactorily for nine years, during which time the cataract in the right eye has made but little progress.

Cases occasionally present, in which the sight of the most ametropic eye is so poor as to make it practically worthless, and any attempt to improve it by glasses is unsatisfactory, as in the following:

Miss C., a seamstress, uses her eyes constantly for fine sewing; complains of asthenopia. Examination shows O. D. V. $=\frac{1}{100}$ diff. with -5.00 D.^s $\subset -4.00$ D.^c, ax. 90° , V. $=\frac{1}{40}$, but she cannot read a word of Snellen's smaller types, not even No. 4. O. S. V. $=\frac{1}{10}$. Hm. $.75$ D. She received $+ .75$ D.^s O. S. plane glass O. D.

It seems to me clear from the foregoing, and from many more similar records in my case-book, that the statement made at the beginning of the paper is true, viz., that no general rule can be formulated which is applicable to all cases of anisometropia, but that we must study our cases care-

fully and take into consideration in prescribing glasses the age of the individual, the range of accommodation, the kind of work, and the distance at which the work must be done. It is valuable at times to examine our clinical records to ascertain what success has attended our efforts, and where we may have erred, and I hope the foregoing study may not prove uninteresting or commonplace. I do not claim originality for my methods, but a truth is often impressed and emphasized by reiteration. Personally, I have at least learned one lesson by this study, and that is the importance of securing binocular vision in the class of cases under consideration, and I shall in future give it more careful attention in my prescriptions than I have done heretofore.

INTERARYTENOIDEAN LARYNGITIS.

BY W. A. DUNN, M.D., CHICAGO, ILL.

CASE I. T. B., aged thirty-five, merchant ; duration of illness two months, with cold as the exciting cause. He has a good family history, and now does not suffer in general health, although he has been racked by such a severe cough. He complains that for two months he has suffered from a slight hoarseness and that on first beginning to move the throat in the morning, it brings on a very hard, dry, spasmodic cough, with but very slight secretion, except while coughing a slight mucous expectoration. When first moving the throat on waking he feels a sensation in the region of the thyroid cartilage as if a splinter or some irritating foreign body was lodged therein, which causes a continual desire to cough.

The cough is a continuous, hard, hacking, and spasmodic cough, which lasts from one to six hours. It is often so severe that he must hold on to something in order to stand erect, as he frequently becomes dizzy and weak from the exertion. When the morning attack is over he suffers but slightly during the remainder of the day. There is no fever, and the lungs are quite normal.

By laryngoscopic examination I found on the interarytenoidean mucous membrane a small whitish thickening, which on phonation folded together as if it were a thin fold of paper. It was slightly to the left and just above the true cords. (Fig. 1.) During complete closure of the arytenoid cartilages the thickening was entirely covered. The other portions of the larynx were quite normal, except that the vocal cords during phonation were of that sphincter-like form which is often found with this condition ; hence the change of voice.

He had Hepar sul., together with a local application on the diseased parts of chloride of zinc twice a day for a week, then once

a day for the same period, when he was discharged cured and very happy. He has since remained entirely free from cough, and by examination the interarytenoidean thickening is seen to have entirely disappeared.

CASE II. Emma C., aged twenty-five; duration of illness one year. General health good, except that from lack of rest, etc., she has become very nervous. Family history good. She complains that for the last year she cannot speak or sing in a loud voice, because of the voice breaking and becoming hoarse.

She suffers from a continual hard, hacking cough, which partakes much of the nature of a forcible hemming, as if to force something from the larynx. The cough is increased by exertion by even slightly irritating inhalations of any kind, and by reclining with the head low. There is a spasm of the larynx during

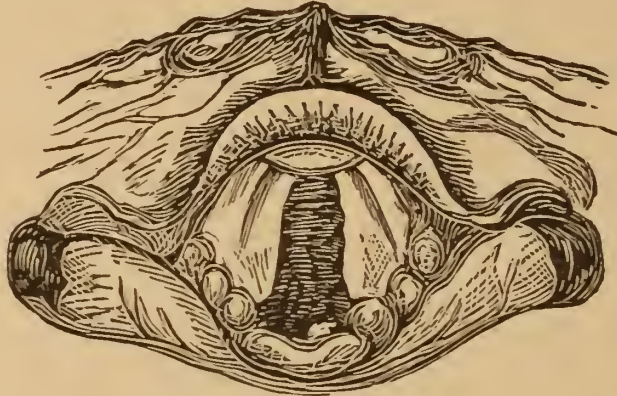


FIG. 1.

inspiration, causing a wheezing, choking, rasping breathing, which is much increased by exertion.

There is but slight secretion, which is yellowish in the morning. She suffers intensely from sudden congestion of the whole throat and thyroid gland, with spasmodic closure of the larynx, during which time she must retain the erect posture and gasp for breath.

Examination shows the interarytenoidean space to be swollen, pulpy, and of dull color. A small point slightly to the right was elevated, and appeared as a small papular outgrowth, on a base of infiltrated epithelium. (Fig. 2.) During phonation the cords of the posterior extremity were not well coapted, owing to the mechanical impediment, but the vocal processes, however, were fairly brought together.

She had ²Hepar sul. internally, and an application of chloride of zinc every day for a few days, when she was very much better and continued to improve so rapidly that in a very short time she had no more spasms of the larynx ; could breathe easily in any position, and could run upstairs, etc., etc. Indeed, life was again a pleasure, instead of a continual burden.

This case shows well the serious condition that may arise from disease of so small a portion of the economy, and the absolute necessity of investigation in this almost unknown field by the general practitioner. Had this condition been observed early it would have saved this poor woman many days of the most intense suffering and pain.

It is truly painful to see these cases worn out from cough-

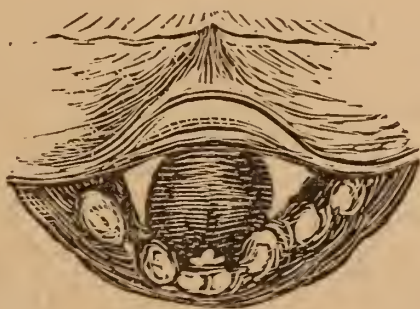


FIG. 2.

ing and anxiety, vainly seeking relief, which can only be given by the aid of the laryngoscope.

CASE III. L. W., aged fifteen, has suffered from severe cough for two years. The patient is rather anæmic, but retains a good appetite. The cough is a shallow but very loud, hard, and, I might say, big cough. It is composed of a hard, rapid expulsion of air through a rigid and partially closed glottis, accompanied by more or less spasmodic action of the larynx.

The paroxysms of coughing are as frequent as every five or ten minutes, and have been so for a long time. There are sometimes attacks of dyspnœa. An examination revealed a normal larynx, except that in the median line between the arytenoid cartilages was a very distinct fissure in the mucous membrane, the walls of which stood above the surrounding surface, and gradually sloped to the exterior borders of the posterior wall. (Fig. 3.)

The interarytenoidean space had lost its smooth, regular sur-

face, and at the point of fissure showed the dull, ulcerated surface of the submucosa.

By the application of astringent solutions to the diseased spot, and the use of Bell., Spongia, and Hepar sul. as indicated, the patient was rapidly relieved, and when she appeared lately in the clinic was only coughing two or three times a day, while the thickening was very much reduced and the fissure lessened in extent.

These are very good examples of this rather common disease, and serve very well to show the two forms in which the disease appears, and the tenacity with which it clings to many persons.

We divide the disease into two forms, *i. e.*, the *catarrhal* form, which attacks the whole or a part of the interary-

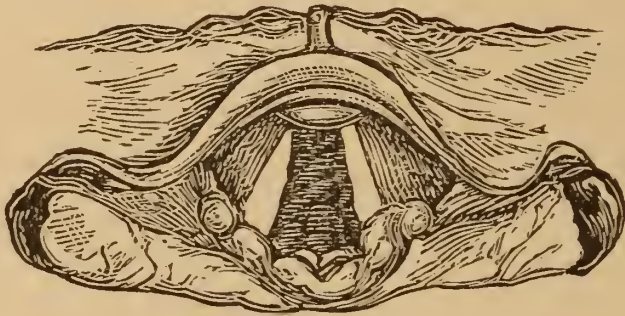


FIG. 3.

tenoidean space, and especially the membrane covering the vocal processes; and the *fissure*, which attacks the middle line between the arytenoids. The situation of this portion of the larynx on the posterior wall and between the arytenoid cartilages, which so often puts the mucous membrane on the stretch, and the fact that the posterior wall of the pharynx is usually in juxtaposition with the posterior laryngeal wall, so that much of the mucus and secretion of the upper air passages fall into the posterior inner wall of the larynx, causing an extension of the disease into this region, as is often seen in granular pharyngitis, etc., and the lack of more resisting epithelial covering, make this inner wall especially liable to catarrhal inflammation. This portion may be inflamed and the remainder of the larynx remain perfectly intact; and, on the contrary, it sometimes happens

that exactly the reverse condition takes place. The catarrhal form is most frequently seen in young patients, and only exceptionally in older persons.

Symptoms.—There are two symptoms which especially characterize this disease, *i. e.*, the change of voice without the corresponding change of the vocal cords, and the peculiarly characteristic cough. In fact, it is often possible to diagnose the affection from these constantly recurring symptoms, without the use of the laryngoscope.

The cough is short, hard, and usually continuous, and is formed by forcing the air through the narrowed chink of the almost closed glottis with great power. It is much like a hemming, except that there is very much more force brought into use and the chink of the glottis is more narrowed.

The paroxysm is not broken by a deep inspiration, as is the case with a cough whose cause is farther down the trachea. It has been shown by Stoerk, of Vienna, that this point is one of the so-called "cough spots," hence it is easy to understand why a catarrhal inflammation at this point will produce such a desire to cough.

The cough is due to irritation of the peripheral nerves, and not to the presence of secretion, as is shown by the almost entire absence of expectoration. If there be any secretion, it is but a small lump of mucus, which appears to have come from the ventricle of Morgagni. It sometimes happens that both the posterior, inner, and outer walls are attacked by the catarrhal inflammation at the same time. In such cases there is usually observed much œdema of this part, which is different from acute œdema glottidis. The œdema may be circumscribed and confined to one or both arytenoids.

As is the rule in inflammations of this kind, the underlying muscles lose their contractility, and we find a resulting immobility of the vocal cords. The musculus transversus being under the most diseased portion, it soon shows its loss of power by the triangular opening in the posterior extremity of the glottis. The paresis may extend, however, to the circo-arytenoideus posticus and lateralis, and

exert a resulting influence on the whole vocal band. We sometimes see a sphincter-like appearance of the vocal cords.

Often, if the catarrhal inflammation has not been promptly relieved, there is a catarrhal ulcer formed on the vocal processes, which seems to be the most sensitive point. This ulcer, which is of a fresh, red color, shows itself by its marked contrast to the surrounding white, sinewy look of the vocal cords. Hæmorrhages have been observed to occur from these points of ulceration, which may be mistaken for hæmoptysis.

Fissure of the interarytenoidean mucous membrane is another form of ulceration frequently found in this location, and may be the result of an acute catarrhal condition or the sequence of syphilis, tuberculosis, typhoid fever, or any disease that may affect the throat. As this part of the larynx is most liable to inflammatory change, we often find on this spot a small elevation of loosened epithelium, under which the mucous membrane is weakened by maceration in the serum resulting from the inflammation; and as this tissue is put violently on the stretch by operation of the arytenoids, as in deep inspiration, etc., it is soon observed that the center of this diseased spot is torn in the vertical direction, and that there is a resulting rhomboidal ulcer at this point. The surrounding elevations appear less prominent, the interarytenoidean surface loses its smooth, even surface, and appears dull and clouded, with a crater-like elevation in the center. As the musculus transversus loses its power, owing to the inflammation of its mucous surface, the equilibrium between the adductors and abductors is lost, so that the arytenoids are separated more than usual, resulting in a more extensive tearing of the diseased surface and an extension of the fissure even into the surface of the musculus transversus. If early observed, the fissure appears as two small elevated folds with a triangular opening in the center, which is devoid of epithelium, and with a dull surface. It is not always possible to tell the extent of the wound, as we can only, in the most favorable

cases, see the whole of posterior inner wall; hence, we only see the upper triangle of the diseased surface.

The subjective symptoms of this form of laryngeal inflammation may be from a very slight irritation to the most violent paroxysms of spasmus glottidis.

In those who do not use the voice professionally, this condition may exist for a long time without relief being sought, except during the acute conditions that may be brought about from taking cold.

Singers and other voice-users, however, who observe slight changes of the voice, will early notice the desire to hem, and the slight hoarseness that appears in the early stage of the disease. I have noticed that in those cases in which the thickening is in the superior portion of the interarytenoidean space there is much less tendency to cough.

There is usually a constant tickling, always at the same spot, and a feeling as if something should be expelled; hence the constant desire to give relief by forcing a strong current of air over the ulcer, which gives about the same relief that does scratching an itching point on the skin. It relieves one irritation, but produces another. Highly seasoned food, cold air, or irritating vapors, cause always a sensation at the same spot.

As the disease progresses we find the characteristic spasmodic cough, as well as more or less change of voice.

Singers early observe that it is no longer possible to sustain the higher tones without great exertion, owing to the hypertrophy of the submucous tissue, and the muscular paresis. If this exertion be too long continued, and especially if the voice be exerted during acute attacks, the muscles quite lose their power, and it is no longer possible to sustain the voice. In those cases in which the musculus transversus has become completely paralyzed the voice is seldom restored. In many cases, as in Case II., we find severe attacks of spasmus glottidis and paroxysms of suffocation, to such an extent that the patient is unable to assume the recumbent posture, or to make any exertion.

Treatment consists in avoiding all irritating inhalations or

the use of the voice. The patient should especially avoid any act that causes a wide separation of the arytenoids, thereby avoiding traction on the fissure walls. Warm applications give relief in the acute stages, as well as steam inhalations in which are dissolved some mucilaginous substance.

I believe it proper to use an anodyne inhalation if the cough be severe, especially by those who have not the skill to make more direct treatment. For ulceration of the vocal processes or fissure of the interarytenoidean space, applications or inhalations of an astringent solution aid the healing process.

As to medical treatment but little is known, as most of the provings have been made without the aid of the laryngoscope, but from the subjective symptoms we usually prescribe Phos., Rumex, Crisp., Hepar sul., Acon., Moschus., or whatever remedy seems indicated. I have not been able, however, to heal the fissure or ulceration without the use of direct local applications.

REPORT OF TWO CASES OF RARE CORNEAL OPACITY.

BY CHAS. C. BOYLE, M.D., NEW YORK CITY.

CASE I.—RIBBON OR BAND KERATITIS AFFECTING BOTH CORNEÆ.—The patient was a man, sixty-five years of age. His health had never been very good, chiefly from stomach trouble. He denied ever having had syphilis, but on questioning him closely, found that at twenty-two years of age he had suffered from what his physician called “spotted fever,” but was not confined to the house. In all probability this “spotted fever” was the secondary stage of syphilis, as the patient admits having had gonorrhœa when a young man. He had never had rheumatism or guot. There had been no tendency to glaucoma, notwithstanding he had used a weak solution of atropine for four years to keep pupil dilated, thus enabling him to see better. I first saw him in 1885. His vision at that time was R.V. $\frac{15}{30}$, L.V. $\frac{15}{50}$. When I last saw him in January of this year, R.V. $\frac{20}{50}$, L.V. $\frac{20}{50}$, with difficulty in both eyes, thus showing that there had been very little change, especially in the left eye.

The opacities appear about the same on each cornea. They extend in a transverse direction across the center of the cornea; the upper and lower edge being well defined, and corresponding about to the palpebral fissure. The opacity is about three millimeters in width at the center, where it is the widest, narrowing slightly at the inner and outer margins. It is denser at the center, and toward the outer border of each cornea, being thinner and less dense at the inner edge. Several fine black spots are to be seen in the left opacity.

He has been taking internally, off and on, since I first saw him Kali muriat. 1st trit. Whether this had anything to do with checking the extension of the disease, I am not prepared to say.

I have seen excellent results from this remedy in true parenchymatous keratitis:

CASE II.—CONGENITAL OPACITIES OF BOTH CORNEÆ IN A CHILD PERFECTLY WELL IN EVERY OTHER WAY.—I first saw the case in consultation with the family physician about five years ago, when the child was only three or four days old. The maculæ were central, that of the left cornea completely covering the pupil when ordinarily dilated, while that on the right allowed the upper third of the pupil to be seen. The opacities were moderately dense, but could see the pupils through them indistinctly. Otherwise the eyes were perfectly healthy,—no discharge or redness. I could find no apparent cause for the disease. The family physician knew of no syphilitic history, but he had not attended the family very long. I questioned the mother in regard to her health during pregnancy ; she said it had been good except about three months before the end of the pregnancy, when she had been sick from what her former physician had called malaria, and for which he had given large doses of calomel. Whether this mercury had anything to do with producing the keratitis *in utero* (as I believe the opacities were due to such an inflammation before birth) is a question.

I have not seen the case since, but the doctor tells me the spots have nearly disappeared.

I put her on Calc. phos. 3 at the time.

ACCIDENTAL RUPTURE OF THE MEMBRANA TYMPANI WITH RESULTS.*

BY SAYER HASBROUCK, M.D., PROVIDENCE, R. I.

There is nothing that will strike a patient with more terror than to tell him that the drum of his ear has been ruptured. He feels that all hope is gone, and that he has lost the use of his ear. Though a very serious accident at times, still it is not always as bad as the first impression leads one to believe.

It has been my fortune to see a number of these cases, though most of them were not of recent origin, and it was only by the history of the cases that I was led to believe that such had been the cause of their trouble.

About two years ago I was very fortunate in seeing three most interesting cases of this trouble, and though I was able to follow these cases until further treatment was unnecessary, I am sorry to say that my notes do not give very accurate tests of the hearing, but I have a most positive remembrance of the general result, and it will have to be this that I shall give you. My only excuse for presenting these cases is that they were very interesting to me, and I trust will not be uninteresting to you.

My first was a most peculiar accident, though, since seeing it, I am surprised that others have not met with similar accidents.

Mr. P., aged twenty-three, while at a fire the day previous, was struck on the right side of his head by a stream from one of the hose at a very short distance; at once he complained of pain

* Read before the American Institute of Homœopathy.

in his ear, though it did not begin to bleed for fully six hours afterward. As soon as blood showed itself the pain left him, and twenty-four hours later, when I first saw him, it was not painful, and he simply desired to know what could be done for the hearing, which he thought was destroyed. There was a bloody serous discharge from the meatus, and on examination of the membrana tympani the whole lower half seemed driven into the middle ear, and had a dark purplish appearance. On testing the hearing distance with the watch, I found it to be in contact only. I then inflated the Eustachian tubes gently by Politzer's method, and the rupture was plainly to be seen forward of the handle of the malleus. The upper end of the rupture was about on a level with the end of the malleus, and from this point it extended to the periphery of the membrane. I dried the meatus with absorbent cotton very carefully, and very gently insufflated a small quantity of boracic acid into it. This treatment was followed up for about ten days, as a slight purulent discharge set in previous to my second visit. At the end of ten days I had the satisfaction of telling my patient that the rupture had healed and further treatment would be unnecessary. Though not perfect, still the hearing was then very good to the watch, and ordinary conversation was readily understood across a fair-sized room, and I told him that I thought that time would show still more improvement. A year later he assured me that the ear was still all right, and that he had no inconvenience in hearing, but I was not so situated that I could test it.

A short time after this, a case came to my office that should be a warning to all who practice the indiscriminate syringing of ears for every complaint, without carefully examining them by reflected light to make sure that it is necessary. This patient had just been to the office of a general practitioner, complaining of deafness, and on his assurance that it was simply wax and could easily be removed, he allowed him to commence syringing, with the result that in a few minutes he fell out of the chair shouting with pain, and a friend who was with him brought him at once to my office. On examination I found the floor of the meatus covered with a straw-colored fluid, slightly tinged with blood; on drying this out the membrana tympani looked as near like a piece of wrinkled tissue-paper as anything else. On inflation by Politzer's method, I discovered that the membrane was

detached from its peripheral attachment along nearly the whole posterior inferior quadrant. This was treated similarly to the previous case, though the subsequent discharge did not subside as quickly, but the result was very satisfactory to the old gentleman, who said that he heard better than he had for a long time, though I did not know what his previous hearing was. Still he could hear better with this ear than with the uninjured one, and he assured me that the injured one was the poorer of the two previous to the accident. It occurred to me at the time that this accident had been the cause of evacuating accumulated lymph in the middle ear, and had acted much as an incision of the membrana tympani would have done in a similar case.

My last case was one of many that have been reported, and one that draws its lesson without comment from me.

Mr. W., a young man of about twenty-five, was standing on the sidewalk talking with some friends, when another friend stepped quietly up behind him and gave him a sharp blow on the side of his head, with the result of causing him to fall to the ground and complain most bitterly of the pain in his ear. On coming at once to my office, I discovered blood running from the meatus, and on clearing this away with absorbent cotton I found the membrana tympani ruptured across the posterior inferior quadrant. This case was treated similarly to the first, and healed very kindly. The patient said his hearing was as good as ever, though I should judge that it had not been of the best, as there was evidently a chronic catarrh of the middle ear, judging from the uninjured one; the Eustachian tube of which could hardly be inflated, and the hearing by the watch was only at about six inches.

In conclusion, I have only one word of advice to offer, and that is, interfere as little as possible with the case at first. If you have pain, leeches and hot applications will usually relieve. If a purulent discharge sets in, your usual treatment for cases of purulent catarrh of the middle ear will be all that is necessary.

PAPILLOMA OF THE EPIGLOTTIS AND BASE OF THE TONGUE.

BY LOUIS A. BULL, M.D., BUFFALO, N. Y.

Long-continued irritation of a chronic catarrhal inflammation of a mucous membrane will generally cause hyperplasia ; and, as the epithelium is more exposed than the other component parts of the membrane, simple epithelial growths, or, as is more commonly the case, papillomata are the result. As the mucous membrane projects into the epithelium as papillæ on both surfaces of the epiglottis, the location and histological character of the growth to be described are accounted for.

G. D. E., aged fifty-six, printer, was sent to me for examination and treatment, current opinion, in which he shared, being that he had "cancer of the throat." He was tall, thin, cachectic in appearance, and had much difficulty, when talking, in making himself understood. He had been affected with nasal and post-nasal catarrh for many years ; not a severe case, however. The exacerbations during winter and spring were accompanied at times with some odor, while during the summer he was comparatively free from trouble.

During the summer of 1888 he was much troubled by a dryness in the vault of the pharynx, which seemed after a time to pass down, and which finally centred at the base of the tongue ; from this time his catarrh ceased to trouble him. Soon the dryness at the base of the tongue took on the sensation of a foreign body, which gradually increased in size and discomfort until I saw him some eight months after.

He then had desire for food, but pain and the physical impos-

sibility of swallowing solid food restricted him to liquids, and the ability to take liquid food was being abridged.

The objective features of the case were as follows: There was sub-acute inflammation of the fauces and pharynx, due, no doubt, to the efforts he was forced to make to get rid of the tenacious mucus which constantly formed. Drawing out the tongue and placing the laryngeal mirror in position, a nodular mass came into view, which seemed to entirely fill the pharyngeal cavity, and it was a capacious pharynx at that. I judged the tumor to be about the size of an English walnut, subsequent events proving this estimate correct. This growth was about evenly divided by a transverse sulcus into an anterior and a posterior portion, the former, as probing showed, springing from the valeculæ between the tongue and epiglottis, and the latter from the epiglottis, whose whole anterior surface was covered by it.

Until the nature of the tumor was decided, and on account of the timidity of the patient, who would at first allow no operative procedures, the treatment was tentative, consisting in spraying the parts daily, under forty pounds pressure, with a mixture of iodoform and glycerine āā., followed by the insufflation of iodol. In about two weeks, during which the tumor visibly grew less, a piece sloughed off, accompanied by free bleeding; from this the papillomatous nature of the growth was at once made out.

The benign character of the tumor being explained to the patient, he at once consented to an operation, which was carried out without anæsthetic or cocaine—the latter not being used through fear of secondary hæmorrhage.

Thinking over the best means of effecting a thorough removal of the adventitious tissue, it occurred to me to use the forceps commonly used for removal of adenoid vegetations from the vault of the pharynx. This instrument, used in the inverted position, proved to be just what was wanted; with it I was able to bring away at each insertion pieces fully as large as a hazelnut; the bleeding which resulted was quite free, but stopped of itself without interference. A

second operation was done several days after, which finished the removal of the tumor. The local treatment between the first and second, and after the second, operation was a daily spray of peroxide of hydrogen (four volume solution) and the insufflation of iodol. The portions removed were placed together as nearly as possible in their natural positions, and the estimate of size, as given above, was confirmed. It was noticed that the portion of the growth which sprung from the epiglottis was much tougher, containing more fibrous tissue, than the part from the base of the tongue, and seemed to penetrate *thoroughly* the structure of the epiglottis. Recovery was quick and, so far, there are no signs of recurrence. The internal treatment was principally directed toward a dyspeptic condition, and consisted in the administration of Nux and Hydrastis, these remedies giving him great relief.

I report this case, not only on account of the scarcity of the literature on the subject of growths in the region of the base of the tongue, but of the rarity of papilloma on the anterior surface of the epiglottis. I find a case of Sir Morell Mackenzie's, reported by his assistant Dr. Nyles in the *N. O. Med. and Surg. Journal* for October, 1887, when the epiglottis had undergone papillomatous degeneration, and in which Mackenzie's treatment consisted in the entire removal of the organ with his epiglottitome.

As pertinent to the subject matter, let me, in conclusion, repeat the query of Dr. Beverly Robinson, in the *Annual of the Universal Medical Sciences*. "Whether the so-called globus hystericus, as seen in nervous women, is not generally less a matter of the imagination than has been supposed, it having been observed that hypertrophy of the lingual tonsil is in such patients commonly present?"

SOME VIEWS CONCERNING, AND EXPERIENCE WITH, OCULAR MUSCULAR TROUBLES.*

BY JAMES A. CAMPBELL, M.D., ST. LOUIS.

Without doubt Dr. Geo. T. Stevens, of New York, well deserves the highest commendation for the thorough and systematic manner in which he has discussed the abnormal actions of the ocular muscles. Much had been written on the topic, but no one has presented the subject with as much comprehensive and practical completeness. Whether we are to follow this enthusiastic operator to the fullness of his conclusions is left to time and individual experience to decide. His explanation of the causes which may conspire to produce heterophoria includes, with few exceptions, the list as usually given; but in the treatment of the resulting heterophoria, everything else, if not actually ignored, seems to be at least made secondary to the operation urged.

The limited time and space at my disposal here will not permit me to indulge in extended argument. I shall content myself by placing before you, briefly, some facts, which I think are self-evident observations and conclusions, which I formulate as follows:

The vast majority of cases of muscular asthenopia or heterophoria, coming under my observation, have been associated with anomalies of refraction. So constant has this been, that I cannot but conclude that in refractive anomalies we find the principal cause of the complication.

The existence of an optical error is always associated

* Read before the American Institute of Homœopathy, June, 1889.

with irregular action and use of certain sets of muscles, leading to overstrain on the one hand, and consequent exhaustion on the other, which will necessarily result in some form of heterophoria.

The optical correction of the anomaly of refraction by glasses, although generally removing the prime cause, does not always immediately remove the heterophoria; because of its long existence, the weakness of the muscle is frequently accompanied by hypertrophy and over-strength of its opponent. It often requires time and practice to equalize and harmonize the muscular balance, just as it took time to produce the disturbed relations of the same.

If heterophoria is corrected by operation, the final result will be unsuccessful, if the optical error causing the same is not corrected also.

While it is true that most of the cases of muscular asthenopia are associated with anomalies of refraction or accommodation, it is equally true that we find many cases of optical error with very little evidence of heterophoria. Why slight degrees of hyperopia or astigmatism may cause very annoying disturbances in some cases, and quite high degrees exist almost unsuspected in others, is yet to be explained.

It is estimated that 85 per cent. of strabismus convergens is caused by hyperopia. In all of the cases there is usually a beginning time, during which there is a periodic deviation of the eyes from their normal direction, a heterophoric condition. But although it is true that turning in of one or both eyes is due to hyperopia in so large a proportion of cases, it is also a fact that the majority of cases of hyperopic eyes are not so afflicted. It is difficult indeed to give a satisfactory explanation of this contradiction. We know that in every case of hyperopia, and other optical anomalies, overstrain of the eye muscles is present to a greater or less degree.

If the above is so, it seems reasonable to conclude that the first steps to take to remedy the heterophoria should be directed to the cause producing the same. Upon this point

all authorities are united. In some cases it will be necessary to neutralize an active overpowering result, as well as to remedy the cause, for the reason given in a former paragraph. Here the operation may be called for in addition; but in most of these cases coming under my observation the operation has been unnecessary. A few examples may be outlined here:

A young lady, aged eighteen; for over two years, eyes painful when used; had much headache, commencing in back of head and neck; was dizzy, felt nauseated when looking intently at any object. Vision $\frac{15}{20}$ with both eyes. Her vision was variable, and to astigmatic tests uncertain. She could only overcome a prism of 4° base out, with either eye. Hyperphoria of uncertain and varying, but slight, degree was present. Paralyzed the accommodation and found hyperopic astigmatism in both eyes requiring $+48^{\circ}$. ax. 90° for correction, which gave equality of lines and $\frac{15}{15}$ for vision. I gave the indicated cylindrical glass for constant use, and ordered a pair of prisms of 2° base out, in spectacle frame, to be worn twice daily for five minutes at a time for the first week; after that, ten minutes at a time. This was continued for some weeks, with gradual gain and final perfect recovery.

In another case, a lady, aged forty-five, who for some years had suffered much torment with head and eyes, was found to have a tendency of the eyes to deviate upward and outward; could only overcome a prism of 5° base out; with a hyperphoria of 2° . Repeated tests showed irregular and spasmodic action of the accommodation. Under Atropia was found a hyperopia requiring a $+42$ glass for correction. This for constant use, with a $+16$ presbyopic glass for near work, and the use of the prisms for practice, as in the above case, together with the appropriate internal remedy, brought about a complete relief and perfect recovery more than a year ago, with no complaint since.

A third and last case may be instructive. In 1887 a gentleman came to me with the usual symptoms of heterophoria; any use of eyes producing pain in and about the eyes, back of the head and neck; dizzy sensations, etc. Examination revealed a myopic astigmatism. R. eye corrected by -60° , ax. 135° ; L. eye -60° , ax. 30° . He overcame a prism of 6° base out with R. eye, and 7°

base out with L. eye. An uncertain hyperphoria of 1° was present.

I gave it as my opinion that his trouble came entirely from the oblique astigmatism, resulting in a constant and long-standing overstrain of the muscles, in the endeavor to lessen the optical disturbance present. I advised correction of the astigmatism, exercise of the weakened muscles by prisms, as well as their stimulation by electricity, aided by the internal remedy, to be selected from the symptoms.

Shortly after this he went to New York on business, and while there consulted a well-known authority, a heterophoric enthusiast, who readily found the hyperphoria, but overlooked the astigmatism. The superior rectus of one eye and the inferior rectus of the other were operated on, and the eyes "leveled," and the patient went away rejoicing over his promised prospective relief. A year went by, and still his old trouble kept up. He returned to me, and I found the same condition of affairs which was present at my first examination. This was four months ago. The astigmatism was corrected, Faradic electricity used, and Natr. mur. was given. A gradual and marked improvement has resulted.

It may be remarked, concerning this last case, that the very essential correction of the astigmatism ought not to have been overlooked. This is true, but the hyperphoria was corrected by the operation, and still it brought no relief, conclusively proving that the true cause of his annoyance was not the hyperphoria, but the astigmatism.

These are but typical cases from the many which might be given, and which have been given by others. I bring them forward to illustrate the point I desire to make, that many cases may be remedied without operation, and that the operation *alone* will not correct the trouble as long as the prime cause remains unchanged, whether it is optical anomaly, constitutional or functional disturbance, or nervous exhaustion or irritation affecting all of the muscles of the body, as well as those of the eye.

The recent discussions of heterophoria sound very much as if the muscles of the eye were attached, with unyielding firmness, to a permanently fixed eyeball, which muscles did not permit any legitimate variations. On the contrary, the

location of the eyeball in the socket, surrounded by yielding tissues, permits the greatest latitude of movement. In the discussions of the action of the muscles the many causes, central, peripheral, and reflex, which may influence the nerves which supply these different muscles, and which alone move them, seems to be almost forgotten or ignored.

It is strange, too, that attention is almost exclusively devoted to the recti muscles, while it is a well-known fact that the oblique muscles have very much to do in determining the movements and directions of the eyes.

Dr. Stevens says: "In equilibrium, the visual lines of the two eyes should be parallel, when the force of the will in accommodating or adjusting the eyes is removed." Or, in other words, that in the position of absolute rest or complete relaxation of the muscles of the eyes, the visual lines are parallel. From this it will be seen that any use of the eyes for visual purposes requires active muscular exertion. In normal conditions this use, if not too prolonged, is not attended by any difficulty or uneasiness, but the presence of any optical anomaly, depression, or nervous exhaustion, whether direct or reflex, will render this active muscular effort, exerted to maintain proper convergence of the eyes, annoying; and if the error-producing condition is persistent, a heterophoria of some form will surely appear.

It may be interesting, at this point, to recall that many of the symptoms which are asserted to be often the result of heterophoria, as neuralgia, neurasthenia, insomnia, nausea, chorea, epilepsy, vertigo, and even some forms of dementia, have been claimed with equally as much vehemence by specialists in other directions, and the usual list of cases and cures reported. For instance, the official surgeon will tell us that hæmorrhoidal "fringes" and "pockets" are without doubt the leading causes. Phymosis and lacerated cervix uteri have had their earnest advocates, as being active factors producing like results. Aurists, and even throat specialists, will offer you cases of a like nature, not to mention the occasional claim of the dentist.

From all of this I conclude that no one group embraces

the whole truth, but are merely various aspects of the one great truth.

The use of an internal remedy for these various forms of ocular muscular troubles, selected from the symptoms as indicated, would be regarded by our old-school friends as a roaring farce; following their usual custom, they would rather cut first and treat afterward; but positive and repeated experience and successes with systematic exercise of the muscles with prisms, together with the use of the well-known remedies, which we have at our command, embracing Argent. nitr., Ammoniacum gummi, Apis, China, Gels., Natr. mur., Lilium tig., Sepia, Senega, Onosmodium, and other well-tried remedies, force me to say, treat first, operate last.

THE ADVANTAGES OF SYSTEMATIC EXERCISE OVER TENOTOMY IN THE TRÉATMENT OF HETEROPHORIA.*

BY A. B. NORTON, M.D., NEW YORK CITY.

So much has recently been written upon the treatment of heterophoria that anything more in this line would seem to be but mere repetition, and would not now be offered did we not believe that an important point in the treatment had been overlooked, and that a source of error in the reports of cases already published could be demonstrated.

It seems to the writer to be the prevailing fashion of the day, among oculists, to correct the weakness or insufficiency of one or more of the ocular muscles by a tenotomy of the opposing or stronger muscle, in this way restoring to these muscles their proper equilibrium. It is certainly a well-recognized fact that unless the ocular muscles are *normally balanced*, there is a preponderance of strength in one direction, heterophoria, causing an *undue* strain upon the opposing muscle in order to turn the eye to a certain position, and in this way possibly producing many asthenopic and nervous symptoms. My understanding of normally balanced ocular muscles can be most clearly illustrated by the action of the internal and external recti muscles, which turn the eye directly inward and outward; now, if one of these muscles be unduly weakened, the tendency of the eye is to move to the opposite side, and there is consequently a constant and abnormal exertion required of the weaker muscle to maintain direct vision.

* Read before the American Institute of Homœopathy, June, 1889.

Our object, then, in treating heterophoria is to regain this relative balance which has been lost ; this, we believe, is best accomplished by strengthening by systematic exercise with prisms the weakened muscle, rather than by weakening by tenotomy the strong opposing muscle.

If the question is then asked, Can this always be done? I should reply from my experience, yes, in the large majority of cases, but not in all. My opinion then is, that we should always, in every case, commence a systematic exercise of the weakened muscle with prisms, and push it to the furthest extent before resorting to operative procedures, as I do not believe we are justified in *laming* any muscle, so long as there is a possibility of reaching the desired end by any other method. The object of this article is to show that it has been my experience that we have to carry this exercise to a much greater extent than has been hitherto recognized, or at least recorded in the current literature upon the subject. I have corrected a great many cases of exophoria, and relieved the asthenopic symptoms only after reaching an adduction of over 70° for each eye ; and in nearly all cases an adduction of 60° has been easily attained by exercise. In esophoria it has been necessary, in some cases, to reach an abduction of 20° or over, divided between the two eyes, while in the majority an abduction of 12° to 16° has been required. In hyperphoria 5° or 6° of sursumduction has frequently been reached, and occasionally by exercise 10° or 12° , divided between the two eyes.

In obtaining this strength of the muscles it has usually required many treatments, extending over several weeks or months, but it is my firm belief that if exercise were carried out to this extent, there would be much less necessity for tenotomies, and in the rare cases in which we grant it is necessary the results would be far more favorable.

In January of the present year Dr. David Webster, one of the most distinguished oculists of this city, or I might truthfully say of this country, reported in *The New York Medical Journal* a series of fifty-five tenotomies on forty patients for heterophoria.

From a careful, and I believe conscientious, analysis of the report of the cases, we are led to make the following deductions: Of the forty cases reported, in only four can the results be considered as good, *i.e.*, perfect relief of the symptoms from which the patient was suffering; of these four, three were cases of hyperphoria of from 1° to 3° , and the fourth a case of esophoria. In twenty-one of the forty cases operated upon there was more or less relief of the symptoms, but not entire, and hence can be classed as only improved, and not cured.

In eleven cases there was no improvement whatever; in three, the patient seemed worse after the operation, and in two cases no results were stated. One noticeable feature to me in this report is, that in only four of the forty cases reported do we find any record of a systematic course of exercise with prisms having been tried. The greatest strength of the inner and outer muscles as recorded is as follows: In one case an adduction of 120° was recorded—probably a misprint—; in two others an adduction of 50° was the highest reached, and in none of the others was the power of adduction given as over 30° ; while for abduction, 24° was recorded in one case, and in none of the others was more than 10° noted. As a final result of the tenotomies, we find that orthophoria was obtained in only fourteen cases, while heterophoria persisted in twenty-four cases, and result unrecorded in two cases.

In the light of my experience I am led to believe that had these cases been carefully and thoroughly exercised previous to resorting to operation, the results would have been far more favorable, for in no series of forty consecutive cases coming under my treatment have I failed to relieve *all* the symptoms in *more* cases than those in which the symptoms were only *partially* relieved. The writer does not wish to be understood as saying that tenotomies are never necessary, for he has frequently operated, according to Stevens's method, for heterophoria of all varieties, and in a very few cases has repeated the operation on the same case before orthophoria was secured; but he does say that

in his opinion we are *not* warranted in weakening the power of any muscle until a thorough effort, extending over weeks or months, has been made with prisms to tone up the opposing or weak muscle; as two strong muscles properly balanced are better than two weak muscles properly balanced.

It is unnecessary to prolong this article by reporting a long series of cases, so I shall simply cite one case from each variety of heterophoria, taken from my case-book, to illustrate the extent to which the exercise of the weakened muscle has been carried.

The first case that of Mrs. G., who came to me on January 8, 1889, with the following history: Has been a sufferer from headaches for a great many years, the pain generally commencing in the temples and extending backward to the occiput. Attacks of these headaches would come on as frequently as once or twice a week, and oftentimes would be so severe as to confine the patient to her bed for several days; says she is never entirely free from pains in the head. Headaches are always made worse upon using the eyes; would frequently have an attack after even the slightest use of the eyes, such as simply reading a letter.

Examination under Atropia showed, O.D.V. = $\frac{1}{70}$ — 1.50 D^s. C — 1.25 D^c. ax. 90°. V. = $\frac{1}{15}$, and lines correct. O.S.V. = $\frac{1}{70}$, — 1.50, D^s: C — .75 D^c. ax. 90°. V. = $\frac{1}{15}$, and lines correct. Exophoria 4°. Exophoria in accommodation 8°. Adduction 30° O.D. 28° O. S. After the Atropia had passed off, the following glasses were ordered for constant use: O.D. — 1.25 D^s. C — 1.25 D^c, ax. 90°. O.S. — 1.25 D^s. C — .75 D^c, ax. 90°. The patient was then placed upon systematic exercise with prisms, every second or third day for five weeks. Each sitting showed a gain of from 2° to 8° in the power of the internal recti to overcome prisms, until at the end of the period she had an adduction of 74° O.D. and 72° O.S. At this time the test showed orthophoria and the patient was discharged, having had *no* attack of her headache in three weeks; and the patient herself stated that her general health had been so much benefited that her friends had spoken of her improved appearance.

Many other cases similar to this could be cited, in some of which I have noted that very little, if any, relief of the

headaches, etc., was obtained until the patient had reached nearly, or quite, the maximum power of the muscles required to give the proper *balance* to the eye, and which in these cases proved to be about 70° . The majority of cases of exophoria, however, will report improvement day by day as the strength of the muscles increases.

The next case, one of esophoria, like the first was a recent case, and is selected because, while showing a high degree of weakness, exercise demonstrated that greater power than usual was required in order to restore the normal equilibrium; and also because both of these cases came under observation after the use of Stevens's Phorometer, and hence we believe no possible error in the tests could exist.

Miss M., aged twenty-six, gave the following history: Headaches *every* day for the past three months; generally directly over the eyes, but occasionally varying to the top of the head or to the occiput; they were made worse and brought on by the use of the eyes for near vision as well as distant. Eyes felt strained when looking at a distance. Examination under Atropia showed V. = $\frac{15}{30}$ O.U. + .75 D^s. \bigcirc + .25 D.^c, ax. 90° , V. = $\frac{15}{30}$ O.U., and lines correct. Esophoria 1° . Esophoria in accommodation 12° . Abduction 8° . As the patient refused to wear glasses the astigmatism was not corrected, and simple exercise of the external recti was followed out two or three times a week for six weeks. There was a gradual decrease of the esophoria as the strength of the muscles increased, until the last record showed orthophoria at a distance and an esophoria of but 1° in accommodation, with an abduction of 21° . The severe attacks of headache had been relieved since the second week of treatment, and when last seen she had been for some while relieved from all the pains in the head.

The last case I shall refer to, is that of Mrs. N., aged thirty, who had been subject to headaches more or less frequently all her life. Headaches were especially on the top of the head and at occiput; would come on suddenly from over-use of the eyes, and be so severe as to cause the most intense suffering for hours. In March, 1886, after an examination under Atropia, the following glasses were ordered: O.D. — .50 D^s. \bigcirc — .50 D.^c, ax. 165° . O.S. — .50 D^s. \bigcirc — .25 D.^c, ax. 15° . These have been only used occasionally for distant vision, and with of course no appreciable differ-

ence as to the headaches. In April, 1887, I began exercising the internal recti muscles, until an adduction of 68° in each eye was obtained; from this time until the fall of 1888 marked relief from the headaches had been experienced, but they then began to return, when a left hyperphoria of 2° was found; yet this lady had a sursumduction of 6° in each eye. Systematic exercise was adopted and followed out for several weeks, until the hyperphoria had disappeared, and this was only after the patient developed a sursumduction of 10° , that is a 5° prism base down O.D. and a 5° prism base up O.S.

This patient has had entire relief from her headaches from that time to this.

Many more cases could be cited, if necessary, as these have been only selected as typical of the different forms of muscular weakness, to show the extent to which exercise may be carried before we have perfect correction of the heterophoria.

INDICATIONS FOR OPERATIVE INTERFERENCE IN HETEROPHORIA.*

BY F. PARK LEWIS, M.D., BUFFALO, N. Y.

Among the corrigible affections of the eye, none probably require more patient and intelligent effort in determining the nature and treatment than those classified under the broad term asthenopia, and relief in many instances is directly contingent upon our skill in localizing and accounting for the essential disturbing element. In certain finely strung and exquisitely sensitive organizations, upon nice refractive adjustment, even to the correction of an error not greater than a quarter of one dioptré, may depend the entire difficulty. So, too, a slight variation from the correct angle of a cylinder—dependent, it may be, upon badly fitting or decentered lenses—may perpetuate in the overstrained eye a sensation of discomfort. The retina, subject to too bright light or too continuous effort, may simply require rest, and this must be recognized.

But even after having located the defect in one or more of the extrinsic ocular muscles, the cause must still be sought for, and if possible found. There is no question that muscular insufficiencies of the eye may be reflex in their nature, and cases might be cited in which disturbances of remote organs are manifested almost wholly in weariness and pain in the eyes, while, as Abadie has recently stated, and as experience has frequently demonstrated, the point of departure from the normal may find its seat in a derangement of the functions of the stomach. Hypersensi-

* Read before the American Institute of Homœopathy, June, 1889.

tiveness of the spine, and irritation of the uterus and ovaries, are frequent causes of asthenopia, while orificial disturbances may also be reflected in the ocular muscles. It is assumed in this paper, as its discussion is limited to the question of operative interference, that all possible causes have been thoroughly sought for, before the responsibility of even partial tenotomy is assumed, for it will readily be seen that, an error having been made, its correction is by no means easy. If a tendon be severed to balance its defective fellow, and then from natural causes the weak muscle regains its strength, damage will have been done which may prove irretrievable, as an exact advancement under such circumstances may be impossible. My own experience has warranted the following assumptions:

First. Either partial or complete tenotomies are rarely necessary in deviations from the normal in the vertical plane—esophoria or exophoria—short of strabismus.

Second. In deviations from the normal in the horizontal plane (hyperphoria), even in some instances in which the deviation is not greater than $\frac{1}{2}^{\circ}$, tenotomy is frequently necessary, and in certain cases the only method of relief.

In the first class of cases, the cause of the asthenopic symptoms will be found to lie in some of the conditions already outlined, and relief can come only from a recognition and correction of these. The treatment required may be constitutional—a remote organ may be at fault, or the asthenia may demand systematic exercise of the atonic muscle or muscles. The eyes must be exercised with suitable lenses or prisms, if necessary, with discretion in any event. Relief may come slowly, but success will follow in a large proportion of cases.

The second class of cases, those in which vertical displacement occurs, are rarely, in my experience, dependent upon ephemeral causes. The eyes are so rarely forced upward or downward for any length of time that any marked disparity in the strength of the superior or inferior recti muscles rarely occurs. When we find a difference in the height of the planes of the eyes the defect is usually a

congenital one, and asthenopia, or some nervous reflex, will be found to have existed for a long time. The importance of a slight discrepancy in these muscles will be realized, when we remember that in the normal condition we can rarely overcome a prism with its base up or down having an angle of more than 3° . The internal recti, however, are frequently strong enough to overcome a prism of 45° and over, in the remote test. A difference, therefore, of but 1° in the vertical meridian, or $\frac{1}{3}$ of the normal power of the muscle, would equal relatively, in its effects, an exophoria of 15° —enough to gravely disturb the functional balance of the eyes. In this condition it not infrequently occurs that the continuous effort to restore the vertical equilibrium of the planes deranges the lateral harmony, and esophoria or exophoria, or both (the one in the distant and the other in the proximal test), will be found to be consecutive and contingent upon hyperphoria. After the relief of the latter, the former disappears. Hyperphoria having been found to exist, and all temporal causes by exclusion being eliminated, relief can be obtained only by restoring the equilibrium by an entire or partial division of the tendon. Frequent examination with the phorometer will demonstrate that such anomalies of attachment are by no means rare, just as accurate tests will often disclose anisometropic conditions of the eyes or asymmetry of the face or head.

There is little to add to what has already been written elsewhere as to methods of examination and operation. As a test I myself prefer a small black cross on a white card, at the usual distance of twenty feet, to the lighted candle, as the cross-bar enables the observer to estimate the disparity in the images with greater accuracy. The tenotomies should be made tentatively. A better result is obtained by several slight divisions of the tendon than by one too radical in its effects. Tests can be made as the fibers are severed, and an exaggerated result thereby avoided. It will occasionally be found, moreover, that a slight under-correction, evident immediately after opera-

tion, will in a few weeks be found to have entirely restored the proper balance, while an over-correction is not so easily remedied.

The following cases, taken from my memoranda made during the last year, will illustrate some of the points which I have endeavored to make :

CASE I.—Mrs. R., aged forty-five, came with an introductory note from her physician, Dr. De Witt G. Wilcox. Has never until recently found difficulty in using eyes, although vision had been poor. In December last awakened one morning to find everything misty in the line of direct vision or in lower field, while in the upper field all was clear. Held her head consequently slightly inclined forward. Had been subject from childhood to various constitutional disturbances. Always had been nervous and irritable. Had been troubled with attacks of chronic diarrhœa, for which no cause could be assigned. Suffered greatly at each menstrual epoch, and lost much blood. A few years ago had severe attacks of sick headache, attended with constipation, alternating with diarrhœa. Digestion very imperfect. Uterine and ovarian congestion, without organic derangement. Has for years been troubled with insomnia. The countenance showed marked elevation of the left eyebrow, a condition which is evidently not recent, as it is plainly shown in old photographs.

A careful examination of the eyes showed :

$$\text{R. V. } \frac{15}{70} + 1. \text{ D}^{\circ}, \text{ ax. } 90^{\circ} \text{ V. } = \frac{15}{20}.$$

$$\text{L. V. } \frac{15}{30} + 1. \text{ D}^{\circ}, \text{ ax. } 90^{\circ} \text{ V. } = \frac{15}{20}.$$

Fundus apparently normal.

The left eye appeared to be higher than the right, and tests with the phorometer discovered left hyperphoria, 4° ; exophoria, 3° .

Suitable glasses were prescribed for constant wear, as well as for reading, and, thinking such an enormous disparity in the planes must be due to spasm, treatment was instituted for three months without relief. March 12 the left superior rectus was thoroughly divided. A small vessel bled so profusely as to make immediate test of vision impossible. After two weeks' time, however, the lateral planes were found almost coincident in height, and the exophoria had quite disappeared. The constitutional symptoms which had kept the woman a life-long invalid were all

mitigated, and she has been constantly improving since. The muscular balance is now quite restored and vision is normal. The nervous, digestive, and circulatory systems are all in better condition than formerly, and consequently the woman's general health is better than it has been for years. She notices still, however, when unusually tired or excited, a tendency for the left brow to be raised higher than its fellow.

CASE II.—Mr. C., an active business man of Jamestown, N.Y., has been under my observation for five years. For a number of years his eyes had been sensitive and weak. Latterly he had grown morbidly nervous; more or less conjunctival congestion was constantly present, and of late all of the annoying symptoms had become exaggerated. He was obliged to use his eyes very steadily in his work as correspondent and accountant, until finally homonymous diplopia would occasionally appear. He had a moderate hypermetropia = 1.50 D., which had been corrected. March, 1888, I found R. hyperphoria 3° (which had never before been sought for), with esophoria 5° . A tenotomy of the right superior rectus was advised, and in June the division of the tendon was made. Dr. T. P. Wilson, of Ann Arbor, and Dr. Harold Wilson, of Detroit, who happened to be present, concurring and kindly assisting. An immediate test showed the lateral planes to be coincident, and while no opportunity for an examination of the eyes has been offered, the following letter, under date of June 1, one year after the operation, would indicate that the esophoria had been spontaneously corrected after the vertical balance had been adjusted.

"I am thankful to say," he writes, "that my eyes have given me so little trouble during the past year that I have not been obliged to pay you a visit on their account. In a few weeks, the double vision which gave me so much trouble entirely passed away, and I have had no trouble from that source since. My eyes have also been much stronger more of time than before, and I have been able to use them harder and with much greater comfort than for a year or so past. I frequently find them strong enough to permit me to read a little evenings in addition to my day's work, and have very little pain from them compared with that suffered before the operation. I have not found it necessary to put on shades in the bright sun, as I had been obliged to do previous summers. I am having some trouble from a little

accumulation of mucus from the lids. Aside from this, I am gratified to say that my eyes seem to be in the best condition they have been in for a number of years, which I attribute to the success of your operation."

These cases have perhaps been the most pronounced in their results of any upon which I have operated. Others similar in character, in which satisfactory results were obtained, might be presented.

As this paper is written, however, not for the purpose of establishing the claims of any operative procedure, but the rather to aid in determining its range and limitations, I am constrained to say that not in every instance in which operative interference seemed desirable have the results warranted my expectation.

I have under observation at this moment a young girl, who for several years has suffered from intense and almost continuous headaches. Judicious treatment from men of both schools of practice had already been received before she came under my care. Remedies, ocular gymnastics, suitable glasses, all having failed, hyperphoria and esophoria were corrected at intervals of several months by partial tenotomies. The result is a lessening of the pain; but so slight is the relief that nothing can be attributed to the operation. In this case, as the muscular balance is now properly restored, the cephalalgia is in all probability dependent upon other causes.

In another case, that of a young man, nervous flushes, seemingly dependent upon esophoria, were in no way benefited by partial tenotomy of the internal rectus, although the eyes were rendered more comfortable, and continued fixation upon a near object rendered much easier. The conclusions, therefore, which my present experiences seem to warrant are:

First. That in suitable cases, especially those in which all usual methods have failed, tenotomy may be followed by very brilliant and gratifying results.

Second. That the chief value of this method of treatment is in *hyperphoria*, and this having been corrected, dis-

turbance of balance in the lateral muscles may disappear spontaneously.

Third. That while, in chosen cases, the results are not always satisfactory, nevertheless the large number of cures in otherwise hopeless cases renders tenotomy a most valuable resource in certain forms of asthenopia, and in general neuroses dependent upon heterophoria.

ANOMALIES OF THE OCULAR MUSCLES.*

BY HAYES C. FRENCH, M.D., SAN FRANCISCO, CAL.

When the observer has the temerity, in pursuance of his investigations, to step far from the beaten path of ordinary research, and especially if he announces a discovery which promises a solution of problems that have perplexed his colleagues with years of fruitless effort, he is very likely to be branded an enthusiast, if not a "crank." Dr. Stevens has had the honor of receiving this form of encomium as a tribute of complacent mediocrity to aspiring genius; and the O., O., and L. section has honored itself by making this one of the subjects of its deliberations at this session. We do not write with the hope of adding anything new to the important revelations along this line of research, but rather to express the gratitude of a novitiate, who is warmly enthusiastic over the results that have greeted his first efforts in the new field. My experience in graded tenotomies has been so small as yet, that my attitude in this discussion is chiefly that of a learner, yet it has been sufficient to give me boundless confidence in the ultimate triumph of the principles evolved through the genius and perseverance of Dr. Stevens.

One case from my record will illustrate the practical value of the system to my patrons :

Mrs. W., from an interior city, aged fifty-five, of a nervous-sanguine temperament, having passed satisfactorily the climacteric seven years previously, came with a train of nervous symptoms of about five years' standing, and all seeming to center ultimately in

* Read before the American Institute of Homœopathy.

the eyes, and seriously affecting their function. She had tried every style of glasses that the skill of the optician could suggest, and all the remedies of a careful homœopathic prescriber, yet without relief. She had persistent and excruciating occipital pains, with occasional metastasis to the supra and peri-orbital region, nausea, vertigo, insomnia, twitching of the muscles of the arms and legs, and annoying formications in various parts of the body. Subjectively she complained of photophobia, photopsies, with occasional black specks before the eyes. There was evident spasm of the accommodation, and a hypermetropia of O.D., 1.75 D., and O.S. 1.50 D., with a plus astigmatism of 0.25 D. in each eye, which seemed to be in horizontal merid. but varied from time to time from 5° to 7° . She presented a left hyperphoria of 1° and esophoria of 2° . The esophoria yielded to muscular exercise, but the hyperphoria required tenotomy of the left superior rectus. After a few days' practice with the prisms the astigmatism located itself permanently in the horizontal axis, and O.D. $+ 1.75 \text{ D.}^s \subset + 0.25 \text{ D.}^c$, ax. 90° ; O.S. $+ 1.50 \text{ D.}^s \subset + 0.25 \text{ D.}^c$, ax. 90° , completed the cure.

I have been struck by the high degrees of lateral heterophoria that may be remedied by the use of prisms alone, and the almost interminable train of nervous symptoms that will disappear under the prism practice. It is also evident that very slight deviations in the vertical muscles, sometimes less than 1° , will require operative intervention. In treating patients from a distance we are often pressed for time, and one of the most perplexing problems in relation to this subject is to determine when the case has passed beyond the remedial power of muscle-training, and tenotomy is indispensable. And perhaps a no less delicate point to determine is the extent of the required operation. It is for light along this line of thought that we await with eager expectancy the result of your deliberations.

One of the first fruits of my enthusiasm was the invention of a simple but effective phorometer, which consists of a hollow brass rod five-eighths of an inch in diameter, and two feet in length, soldered to the center of a cross tube of one-fourth of an inch in diameter and eight inches in length.

The cross tube has a slot in its entire length, in which three prism-carriers glide freely, and can be adjusted instantly to suit the pupillary distance of any patient. The prisms can be rapidly adjusted with the base in or out, and the carrier on one side is made to carry a prism with the base up or down. The rod runs through a brass holder, which is firmly screwed to the edge of a convenient table, and is raised or lowered to suit the height of the patient by means of a brass thumb-screw. Mine is fixed to the center of a table 28 x 22 inches. It is attached to the back of the table to allow the use of a drawer. On the left corner stands my optometer, and on the right a trial case, while the prisms are in a case by themselves, by the side of the table, thus making a compact and convenient outfit.

OBSERVATIONS ON THE METHODS OF EXERCISING THE OCULAR MUSCLES WITH PRISMS IN HETEROPHORIA.*

BY CHAS. DEADY, M.D.

The subject of heterophoria, or the loss of the normal equilibrium of the ocular muscles, for the scientific demonstration of which the profession is indebted to the genius of Dr. Stevens—is one which is at present exciting much interest and causing much discussion among oculists; and when we consider the variety and severity of the resulting conditions, both local and general, we are certainly justified in using every effort to increase and elaborate our knowledge of the various deviations, their causes, and the best means for their correction.

Respecting the last division of the subject, considerable difference of opinion has arisen; many competent physicians inclining to the belief that tenotomy of the opposing muscle is the only reliable method of treatment, while others maintain that two wrongs never make a right, and insist that the lost power of the weakened muscle or muscles must be restored by appropriate exercise.

The writer, while in favor of exercising the faulty muscles with prisms as against tenotomy in the majority of cases, is fully aware of the fact that this method has its limits of usefulness; yet it has seemed to him that many of those who claim to have failed of success in its application might, with justice, have ascribed that failure rather to a lack of precision and care in the individualization of cases, and of

* Read before the American Institute of Homœopathy, June, 1889.

the ways and means best adapted to each, than to any inherent fault in the system.

The amount of benefit to be derived from systematic exercise varies greatly with the degree, and especially with the direction, of the deviation; in the writer's experience the conditions coming under the head of hyperphoria present the greatest difficulty, while exophoria is the most amenable to treatment by this means, the difference being in proportion to the strength of the muscle and to the degree of control exercised by the will power.

The internal recti muscles are subject to the control of the patient to a considerable extent in almost all cases, and the writer has never failed to restore their power by the use of prisms, when the patient was possessed of sufficient intelligence, energy, and persistence to carry on the treatment properly. But even here many factors are to be considered, if the object is to be successfully accomplished. In the first place many patients are entirely unable to exercise any control over the internal rectus of a single eye; they are accustomed to turn the eyes toward the median line in the act of accommodation, but here both eyes are turned, and turned in response to a stimulus which is near at hand, while they are assisted in the act by the consensual relation between accommodation and convergence; and we have frequently met with patients who could at first accomplish the required movement under no other conditions.

In this class of cases it has been the writer's habit to make use of the accommodation at the beginning, to assist in the control of the eyes, and for this purpose prisms are used which are set in square spectacle frames, with their bases outward, in pairs, rising by easy gradations from 2° to 20° for each eye, the latter being as large as can be conveniently handled in a frame. One of the weaker pairs being adjusted to the eyes, the patient is directed to look at the candle-light, which is carried from the proper distance of twenty feet to a point near enough to enable the subject, by the aid of his accommodation, to fuse the images, when the light is gradually removed, until the fusion is perfect at in-

finity. By substituting prisms of increasing angles the fusion is maintained up to 70° or 80° (the higher numbers being obtained by using two frames at once), and usually when this has been accomplished the patient has acquired the "knack" sufficiently to overcome a single prism with considerable facility. The use of double prisms for the internal recti muscles should always be followed by the exercise of each eye alone with single prisms, as the stronger muscle is generally found to do the greater part of the work when both are used together.

In the exercise of the single eye, the patient is directed to hold the prism base outward before the eye in such a manner that the two images are exactly on the same plane; if either is higher than the other, the labor of fusion is greatly increased; he is also required to hold the head perfectly straight, as, if it is turned toward the side of the muscle exercised, the labor is increased; if turned in the opposite direction, it is diminished. The writer formerly held the prism before the patient's eye, and later tried various means of mechanical adjustment, but has found by experience that the object is more speedily attained by having the glass under the patient's control.

The degree of the angle to be overcome varies widely, and is not always proportionate to the apparent degree of deviation; many patients who at first find it difficult to overcome a prism of 6° or 8° reach the point of equilibrium at 50° or 60° , while others are obliged to go much higher; in one case the balance was only reached by the use of an angle of 90° . When the case is complicated by the presence of myopia of a considerable degree the decreased mobility caused by the elongation of the eyeball makes the exercise difficult and the progress slow; of course, in very high degrees of this form of ametropia it is generally both impossible and unadvisable.

It is very important that the physician should watch the patient's eyes carefully while exercising them for exophoria, as it sometimes happens that apparent fusion is due to the fact that the eye is allowed to turn outward, and the images

are thus removed so far apart that only one of them is within the field of vision. It is also necessary that the patient should concentrate his whole attention upon the subject in hand, and bring his will-power to bear to the fullest extent; for this reason his attention should not be distracted by conversation or otherwise, and in many cases such digression makes it entirely impossible to overcome the larger angles. It is often best that the eyes should be closed for an instant while the prism is changed, the difference in the direction of the visual line when the eye is uncovered being frequently sufficient to cause a loss of control, which can only be regained by beginning again with a low angle and repeating the exercise. Each prism should be held for a few moments, until the eye becomes steadied in its new position; it is not sufficient that it be held only until the instant of fusion; such hasty work does not produce the best results at the time, and the patient is less apt to hold what he has gained until the next treatment.

As before stated, the treatment by exercise is less satisfactory in esophoria than in the condition above described. In exophoria the will-power of the patient is a valuable aid, while in the opposite deviation the reverse obtains. For this reason the writer has long since discarded the use of the candlelight in the training of the external recti muscles, having found it much more difficult for the patient to hold the will in abeyance and overcome the tendency to convergence when gazing steadily at a given point. This exercise is best conducted by using both eyes at once, the prisms being set in square frames with the bases inward. The set used by the writer for this purpose consists of seven frames, beginning with a prism of 2° for each eye, and augmenting in strength by single degrees up to 8° for each eye. The office being twenty-four feet wide, the patient is seated four feet from one side and directed to look at objects in general on the opposite side of the room, or rather *through* them, as if looking in the distance. The frames are placed on the face, and the use of a given angle is persisted in until fusion is complete and easy; in many cases this re-

quires a considerable period of time. During this exercise the patient is encouraged to talk to other persons in the room, or to use any other means to distract the attention from the object in view, such conditions being best adapted to hold in abeyance the power of the will, which opposes the work in hand. Closing the eyes and opening them slowly and carelessly often assists materially in obtaining fusion.

The patient may persist in denying that he sees double images, even when a prism of considerable strength is before the eyes; this is sometimes due to the fact that he is so habituated to the effort to overcome diplopia that it cannot be demonstrated easily; by placing a red glass before one eye the fact may be made apparent.

Other patients may be unable to overcome even weak prisms with their bases inward; here we again resort to placing an object nearer the eye; not to utilize the accommodation, as the patient should be directed to avoid this by looking *through* the object, and not *at* it, but because prisms with their bases inward throw the image to the inner side of the macula lutea, which is thus projected outwardly; consequently the farther the object is placed from the eyes the greater distance the images are apart, and the greater effort needed to fuse them.

When fusion is perfect at a near point, the attention must be directed to an object farther off, and this practice continued until infinity is reached.

This is rather tedious and difficult work, and the majority of patients must begin with the smallest angles. Equilibrium is frequently reached by the use of prisms of 7° for each eye—sometimes with lower numbers; but it is not uncommon to be obliged to go to 8° , 9° , or even 10° , to accomplish the desired result.

In high degrees of esophoria, gymnastic exercise of the weakened muscles is of little avail; when the deviation is as high as 8° no amount of practice is sufficient to overcome the condition, and tenotomy must be resorted to.

Another difficulty in this variety of deviation is the great

tendency in many cases to lose ground after the treatment has been discontinued; while in the case of the internal recti the results under proper conditions are apt to be permanent; the external recti, on the contrary, are subject to relapses, and the work must sometimes be repeated again and again before the equilibrium can be maintained.

Insufficiency of the superior or inferior recti muscles, known as hyperphoria, is, unless of low degree, the most difficult of all deviations to overcome by systematic exercise. While this fact is freely acknowledged, it does not necessarily follow that all these cases must be submitted to the knife. Dr. Stevens has stated* that lateral deviations are favored by the presence of hyperphoria, and may sometimes be corrected by its removal. To this we would add, that low degrees of hyperphoria sometimes seem to be dependent on the presence of esophoria or exophoria, and may be made to disappear by the correction of those conditions. The superior and inferior muscles have comparatively little power in the normal condition, and are only slightly susceptible to training; it is therefore a waste of time to attempt to remedy a high degree of hyperphoria by this means, but deviations of 1° or 2° may often be restored by persistence in the treatment for a considerable time.

Here we can give no special assistance to the patient by advice as to the best method of obtaining fusion; while in some cases a perfect relaxation of will-force seems best to attain the desired result, in others a voluntary effort seems to be necessary. In many instances the object may be accomplished in a shorter time by closing the eyes whenever there is a tendency to increase of distance between the images; this is also true in esophoria, and perhaps in a more marked degree.

Exercise for hyperphoria may be by means of single prisms held before either eye in turn, with the base down for the superior rectus, and upward for the inferior rectus, or by the use of a frame with a prism, base down, in one

* *Arch., Oph.* XVII., No. 2.

eye, and up in the other, thus training the superior rectus at the same time as the inferior muscle of the opposite side; the opposing muscles to be reached by prisms with their bases in opposite directions in another frame. When a single prism is used, it is advisable to first hold it before each eye with the base down until fusion is accomplished; this to be followed by a period of rest before reversing the prism for the opposing muscle, as it must be obvious that if we first stimulate the superior rectus of one eye, and then pass to the inferior rectus of the other while the first-named is still in a state of tension, the act of fusion will be due more to such tension than to any effort of the inferior muscle.

Considerable judgment is sometimes necessary in deciding as to the frequency with which practice may be allowed. With robust patients it may matter very little how often the sittings occur, but many of these patients are delicate women whose nervous systems are badly shattered by the long-continued strain before treatment is attempted, and if we would avoid aggravating this condition we must use caution.

In hyperphoria and exophoria the act of fusion is to a great extent passive, and consequently has less effect upon the strength of the patient; here sittings may be had daily, or every other day, with good results, especially when we consider that in these conditions there is great tendency to lose ground if the intervening period is considerable. Even here we may be obliged to lengthen the intervals in some cases, as when the training produces dizziness or headache, or both, when the patient must be allowed sufficient time to recover from one sitting before undergoing another.

In exophoria, however, where the will-power is constantly exerted to obtain fusion, the exercise becomes a severe labor with some patients, sometimes causing profuse perspiration and great fatigue, especially when using large angles. Under these circumstances it is easy to do more harm than good by the treatment, and not only this, but the object in view may be defeated by careless haste in such

cases, as the general debility thus engendered will often make it impossible for the patient to do the necessary work, and instead of increasing the angles, we may be obliged to diminish them.

Under these conditions better results are obtained by decreasing the number of sittings to two, or even one, a week, the slighter tendency to relapse in exophoria admitting of such delay when necessary.

It is well to inform a patient who is for the first time entering upon a course of this treatment that he may expect a temporary aggravation of his symptoms, as in the majority of cases the strain consequent upon such unusual tension of the ocular muscles is followed by headache and general lameness of the parts, often to such a degree as to cause alarm when such caution is neglected. This soreness soon passes away if the treatment is persisted in, and may to a considerable extent be obviated by the use of a gentle Faradic current after each sitting, the negative electrode being applied to the back of the neck, while the positive is passed over and around the eyes for a few minutes.

When the desired result has been obtained, and especially when a tendency to relapse is present, it is sometimes advisable, before discharging the patient, to give him an order for a prism of the degree last used for exercise at home, the frequency of such exercise varying according to the necessities of the individual. This practice, however, must be followed with discrimination, as it is quite possible for a patient to overdo the matter, and by overtraining the muscle to produce a loss of equilibrium in the opposite direction. It is, of course, understood that anomalies of refraction, of whatever variety, are to be corrected by the proper glass before undertaking to remedy their results by this or any other method.

SYPHILITIC PHARYNGITIS.

BY F. F. CASSEDAY, PH.B., M.D., KANSAS CITY, MO.

The case which I have to report is of interest on account of the extent of the ulceration, and the prompt result from the treatment.

Mrs. R., Swede, married, forty-one years of age, and the mother of four children, presented herself for treatment in October, 1888. Mrs. R. is a tall woman, of large frame, but of rather spare habit. She has always enjoyed good health previous to this attack. Her husband is a strong, healthy man, and is apparently in the best of health. Family history is rather vague and unsatisfactory. During the early summer of 1888, she developed a troublesome post-nasal catarrh. The discharge was thick and very profuse, and was accompanied later by manifestations of specific disease in the form of ulceration of the soft palate. When I first examined her, there was a perforation of the soft palate, the opening being nearly three-fourths of an inch in diameter, and the superficial ulceration extending from the sides or edge of the opening for a quarter of an inch further in every direction. The ulceration was distinctly cup-shaped and of irregular size. It was covered with thick, tenacious, cream-colored discharge. There was very little pain. The swelling of the soft palate was sufficient to give quite a nasal twang to the voice. Deglutition of liquids was quite difficult on account of the regurgitation of fluid through the nostrils and the opening in the soft palate, but it was slight and easily relieved. There was no ulceration in the nose, either anteriorly or posteriorly, and the ulcerative process had not extended to the bones or cartilages. In addition to these symptoms there was a brownish-red eruption on the left leg just above the ankle, about the size of a silver dollar. The skin at that point was slightly thickened. The only sensation referable to the eruption was a slight itching at times.

My theory about the causation is, that the patient may

have contracted the primary disease, and passed through its various stages without her knowledge, as is the case in a very considerable number of instances in women. As to when this primary invasion occurred, or what was its extent, I offer no suggestions. I am of the opinion that the case is still in the secondary stage, though I will not be surprised if tertiary lesions develop. However, the last two stages, under the popular classification, are arbitrary, and do not represent constant lesions or groups of lesions; furthermore, these lesions do not appear in their due time in all cases, and they do not always follow the course usually assigned them.

The treatment was as follows; A wash of borax, ammon. chlor., and permang. potass. in pint of water at 100° Fah., was used once a day with a post-nasal syringe, as a stimulant and disinfectant. A little later this wash was used at longer intervals, and powdered chlorate of potash was blown upon the ulcerated surface. Merc. corr. 3x trit. was given at intervals varying from two to four hours. Under this treatment the ulceration gradually healed, and the perforation steadily closed, until at this writing the opening will barely admit a darning needle, and the catarrhal discharge has almost entirely ceased. During the height of the ulceration, the patient became cachectic and emaciated, but under a good nourishing diet, with an occasional bottle of bovine, her condition and appetite improved.

To-day, she expresses herself as feeling better than she has for years, and her appearance certainly does not belie her words. There was no laryngeal complication at any time during the attack.

After giving Merc. corr. for two months the patient suffered from a slight aggravation in the form of a diarrhœa, which ceased after withdrawing the remedy for a few days, and giving a few doses of Hepar.

Patient is still under treatment, and will continue to be for many months. I will report further in regard to the case.

A NEW FORMULA FOR OBTAINING THE CORRECTING GLASSES IN RETINOSCOPY.

BY CASEY A. WOOD, C.M., M.D., LONDON, ENGLAND.

The signs (+) plus and (—) minus, used to designate the various lenses in the trial case, are really algebraic terms, and the addition and subtraction of them are subject to the ordinary rules of algebra. If this fact be borne in mind the determination of refraction by means of retinoscopy becomes a comparatively simple procedure, inasmuch as the needless multiplication of rules, as we find them in most text-books, and the confusion arising therefrom in the mind of the student, can be avoided, and *one* general rule may be formulated for theoretically neutralizing *every* form of refractive error. The difficulty arises, not in finding the retinoscopy result, *i.e.*, what lens or lenses will “turn the shadow” in the two meridians, but how to prescribe glasses therefrom for the patient’s use.

It is assumed that the pupil of the observed eye has been dilated with cocaine or homatropine, or, if it be considered advisable, that the accommodation has been paralyzed by atropine* (4-10 grs. to the $\frac{3}{4}$ dropped into the eye three

* Mr. Lang, of the Royal Ophthalmic Hospital (Moorfields), thinks it sufficient for this purpose to use, instead of atropine, *one drop* (to be put into the eye half an hour before retinoscopy) of the following:

Homatropine.	} aa gr. v.
Cocaine	
Ol. Ricini Opt.....	$\frac{3}{4}$ ss.

A couple of drops of a solution of eserine, also in castor oil (4 grs. to $\frac{3}{4}$) are dropped into the eye after the examination, and the objectionable mydriasis passes off in a few hours. It is well to tell the patient to keep his eyes shut until they are examined, and so avoid the formation of the dry corneal film caused by the cocaine.

times a day for from three to five days previous to examination) that the observer satisfies himself that the media are practically clear, and that irregular astigmatism is excluded. The patient should fix (with the macula of the examined eye) the central point of the examiner's mirror, which, to obtain accurate results, should be distant *not less than* five feet from the observed eye.

The student will find the following rule a simple means of calculating from the results of his examination the true correcting lens or lenses. It will at once be noticed that the meridian of the measurement, which determines the needful sphere in astigmatic cases, always coincides with the axes of the cylinder required, but as an aid to memory, the same phraseology has been preserved in the three references made to it in the rule, which is as follows:

Add—.75 D. to the retinoscopy results in both meridians. Of these two sums the sphere is always the lower (the plus if there be only one plus) sum, while the cylinder is always obtained by subtracting the lower (the plus if there be but one plus) sum from the other, and its axis always coincides with the meridian of the lower (the plus if there be but one plus) sum.

Two examples of mixed astigmatism (in which condition retinoscopy is perhaps specially useful), will serve to show the working of the rule: (1) An eye is found by retinoscopy to have M. of .25 D. in its (apparent) vertical meridian and H. of 2.50 D. in its horizontal. To find the correction add—.75 D. to each, $= \frac{-1. \text{ D. Vert.}}{+1.75 \text{ D. Hor.}}$ The sphere, according to the rule, is the plus sum, since there is but one, or +1.75 D., combined with cylinder -2.75 D. (the single plus sum, +1.75 D., subtracted from the other, -1. D.), whose axis is horizontal, *i.e.*, the meridian of the single plus sum, or sph. +1.75 D. \subset cyl. -2.75 D. ax. hor.

(2) A retinoscopy examination shows an eye to have in its apparent vertical meridian H. of 1.75 D.; in its apparent horizontal M. of 3. D. To find the correcting glass proceed as before, and add -.75 D. to each, $= \frac{+1. \text{ D.}}{-3.75 \text{ D.}}$ The sphere is the single plus sum (which in this instance happens

also to be the lower) or +1. D. combined with a cylinder obtained by subtracting the plus (+1. D.) from -3.75 D. = -4.75 D., whose axis is vertical, as is the meridian of the single plus sum, viz., +1. D.; or sph. +1. D. \subset -4.75 D.^c ax. vert.

Note.—In the above examples bi-cylindrical lenses would be used in this country and not spherocylindrical.—ED.

THE VALUE OF ICE AFTER CATARACT EXTRACTION.

BY GEO. S. NORTON, M.D.

In 1883 I read a paper before the American Homœopathic Ophthalmological and Otological Society, in which the use of ice was very strongly recommended as an important therapeutic measure in the treatment of various forms of inflammation of the eye, especially in preventing and aborting the inflammatory attack in its initial stage. Illustrative of its beneficial influence after complicated cases of cataract extraction two cases were cited. A further experience of six years has fully confirmed all that was then claimed, and the results of which are now presented more in detail to my colleagues in ophthalmology.

In addition to the two cases above referred to—a synopsis of which are here given—the following ten cases are detailed as illustrating the value of ice after the extraction of cataract, and so forming a text for my remarks upon the subject:

CASE I.—Mrs. P., aged sixty-three. In May, 1882, as cataract was immature, an iridectomy was made upwards in the right eye, and Förster's method for maturing cataract performed. On October 21, 1882, she returned with cataract mature, but the edges of the coloboma in iris firmly adherent to lens. Ether was given, Liebreich's incision upward made, and capsule lacerated with cystotome. The lens, however, would not engage in the wound on account of the firm adhesions. Several attempts were made to still further divide the capsule and separate the adhesions, but without avail. The iris at point of adhesion on both sides was

then grasped with iris forceps and excised with scissors ; after which the dark-yellow lens, almost black, was removed without difficulty. No vitreous was lost. Some of the cortical substance remained in the eye, but no further attempt was made to remove it, as the anterior chamber filled very slowly, and the patient had been about one hour and a half under the anæsthetic. She was at once put to bed and the ice-bag applied ; this was continued for four days. No reaction followed ; the cortical substance absorbed leaving a perfectly clear pupil, and in four weeks she returned home to New Hampshire with vision "as good as before cataract appeared" ; though vision was only $\frac{7}{200}$, owing to extensive atrophy of choroid and optic nerve.

CASE II.—Mr. G., aged sixty. Mature, hard cataract in both eyes. Patient was in an advanced stage of chronic nephritis, was partially deaf, and at times insane ; also had a large hydrocele, as well as nasal polypus. The polypus was removed by Dr. C. E. Beebe, so that he might breathe with less difficulty. A preliminary iridectomy was made upon the right eye in December, 1882. In March, 1883, he was admitted to New York Ophthalmic Hospital and atropine instilled, intending to operate upon the following day, but as the patient became delirious during the night and remained so several days, the operation was necessarily postponed till April 25, 1883. Ether was then administered and Liebreich's incision upward made. Upon attempting to divide the capsule, vitreous appeared in the wound, so a scoop was at once introduced into the eye and the lens removed, with very little loss of vitreous. An ice-bag was applied and Aconite 3 given internally, which, upon the following day, was changed to Rhus tox. 1 on account of a slight œdema of the upper lid. It was found impossible to keep the patient quiet, as he persisted in talking incessantly and constantly moving about the room, unless forcibly restrained by the nurse. Notwithstanding all this, however, the ice was used as thoroughly as possible for four days. He made a rapid recovery, and in four weeks was discharged with V. $\frac{20}{100}$, which might have been improved by a discission, if the patient had returned.

CASE III.—Mr. B., aged fifty-nine. Cataracta dura mat. O. S. Right lens clear. April 20, 1886, cocaine was instilled, but as the patient was very nervous and did not seem to have any control over the eye, it was found necessary to administer ether. Antiseptic precautions were not followed thoroughly. The lens

seemed to be adherent, as it could only be removed piecemeal with a scoop, thus injuring the iris to a considerable extent, though no vitreous was lost. The ice-bag was applied and *Rhus tox.* given internally. For forty-eight hours the patient had no unfavorable symptoms. He was then attacked with severe pain in a decayed tooth, which he bore without complaining to the nurse. On the third day a purulent irido-cyclitis developed, and the eye was lost.

CASE IV.—Mrs. W., Eighty years old. Cataracta dura matura O. U. The patient was not only old and feeble, but a portion of the time decidedly “out of her mind,” muttering and talking to herself, and impossible to keep quiet. On February 6, 1888, after a preliminary iridectomy, the left lens was extracted through an upward incision without difficulty and with no complications. The usual bandage was applied. Several hours after the operation she began to complain of pain in the eye; the ice was then used and *Rhus tox.* given. The pain was, however, not relieved until atropine was instilled. The next day the wound was hazy, when the ice was immediately discontinued, and the cornea carefully brushed with a warm solution of bichloride of mercury 1:8000, every hour. Very little control could be exercised over the patient, as she would persist in doing everything objectionable, even though constantly watched. As a result the cornea suppurated and the eye was lost.

CASE V.—Mr. M., fifty-six years of age. Morgagnian cataract in both eyes. Perception of light good. In February, 1888, preliminary iridectomy was made in both eyes, followed by iritis in the left. On March 31, 1888, after instillation of cocaine, and careful antiseptic precautions, a Liebreich's incision upward was made in right eye with great difficulty, owing to a most severe spasm of the lids, over which the patient seemed to have no control. Upon attempting to lacerate the capsule the spasm of lids and ocular muscles became suddenly so intense that it forced out fully one half of the fluid vitreous. The eyeball collapsed, and the lens sank backward out of sight. Ether was then administered and the lens easily removed by aid of the scoop. A bandage was applied and patient put to bed with eye resting against an ice-bag. *Rhus tox.* 1 was prescribed internally. During the night, as the patient became so restless, and the spasmodic action of the orbicularis came on at frequent intervals, forcing the fluids

out of the eye, a hypodermic injection of morphine was given, after which he rested quietly until morning. The Rhus was continued internally, and the ice externally, for four or five days, gradually stopping the use of the latter as seemed agreeable to patient. He made a rapid recovery, and was discharged with primary vision $\frac{20}{70}$.

CASE VI.—Mrs. N., aged sixty-seven. Cataracta dura mat. O. S. The right eye had been operated upon for cataract, with only moderate success, previous to my seeing her. On June 4, 1888, a preliminary iridectomy having been made, I extracted the left lens through a Liebreich's incision upward. As the eye was unusually deeply set in the socket, and the lens very large, it was found necessary to enlarge the corneal incision, after which the lens was removed without difficulty. The iris having prolapsed into the wound, and thus been bruised, the protruded portion was excised. The same evening she began to complain of considerable pain in the eye. The ice-bag was at once applied, and Rhus tox. given internally. Notwithstanding this treatment, an aggravated irido-capsulitis developed, filling the whole pupil with a white mass, after four or five days. Ice was discontinued, and a warm pad substituted, various remedies being given internally. The inflammation, however, continued for two or three weeks, when it at last subsided, leaving the pupil closed with a dense membrane. Later a discission was made, resulting in V. $\frac{20}{30}$.

CASE VII.—Mrs. S., aged thirty-five. Cataracta dura mat. O. U. On October 18, 1888, under cocaine, an upward incision was made in the corneo-scleral junction, the capsule ruptured, and the lens easily extracted without an iridectomy. On attempting to remove a small portion of the cortical substance lying upon the iris, the iris prolapsed, and was so injured that an iridectomy was considered advisable. The lids were closed with single strips of goldbeater's skin plaster. No bandage. The same evening she began to complain of pain in the eye, and the lids became a little swollen. Rhus tox. 1 was given, and the ice-bag employed. This treatment was continued two days. On the third day she was allowed to sit up. A rapid recovery resulted, with V. $\frac{20}{30}$.

CASE VIII.—Mrs. R., seventy-six years of age. Cataracta dura matura O.U. This patient was partially insane and in poor health generally. On October 22, 1888, a previous iridectomy having been made, from which she had had slight iritis with blood in the anterior chamber for some two or three weeks, the

lens was extracted through a Liebreich's incision upward without complication. An hour or more after the operation she complained of sharp pains through the eye, when Rhus tox. 1 was administered and the ice-bag used. She made a rapid recovery, although as the ice gave her so much comfort it was continued for five days. V. $\frac{2}{7} \frac{0}{0}$.

CASE IX.—Mr. W., aged sixty-eight. Cataracta dura matura O.U. On October 25, 1888, after instillation of cocaine, an attempt was made to remove the lens without an iridectomy. An incision upward was made in the corneo-scleral margin, but just before its completion the patient started suddenly, and contracted the lids and ocular muscles so forcibly that the iris fell in front of the knife and was cut as the incision was finished. At the same time the lens in its capsule, with nearly one-half of the vitreous, came out with such force as to rise fully one-half inch from the eyeball. The eye was then closed for ten minutes, after which a solution of bichloride of mercury 1:10,000 was instilled, and the eye bandaged. The ice-bag was immediately applied and Rhus tox. 1 given. This treatment was continued for four days. No complications followed, and the patient made a quick recovery with V. $\frac{2}{7} \frac{0}{0}$.

CASE X.—Mr. McL., aged sixty-seven. Cataracta dura matura O.D., incipiens O.S. This patient had, in addition to the opacity of the lenses, a melano-sarcoma of the conjunctiva of the left eye (a description of which will appear in a subsequent paper upon Tumors of the Conjunctiva). The right eye was apparently perfectly free from any malignant growth. January 7, 1889, a preliminary iridectomy having been made, cocaine was instilled and Liebreich's incision upward made. After a peripheral capsulotomy the lens, which was very hard and large, was removed with slight difficulty, owing to the incision being none too large for the unusual size of the lens. No cortical substance remained, thus leaving a perfectly black pupil. The wound was carefully cleansed, and a solution of boracic acid dropped into the eye. The lids were closed with goldbeater's skin plaster. During the night he complained of pain in the eye and the lids became œdematous. At once the ice-bag was used, and Rhus tox. 1 given internally. Notwithstanding this treatment, however, the cornea suppurated and the eye was lost from panophthalmitis.

CASE XI.—Mr. H., sixty-seven years of age. Cataracta dura

immatura O.U. This patient was able to count fingers at some five feet distant, but as the vision was insufficient for him to continue his work, a preliminary iridectomy was made upward in left eye. March 12, 1889, the lens was extracted, through a Liebreich's incision upward without difficulty. A small portion of the iris, however, prolapsed into the edge of the wound and could not be replaced. I, therefore, very foolishly, took hold of it with an iridectomy forceps and excised, without holding the eye with fixation forceps. The patient naturally started, and although the iris was not detached at the periphery, yet it was torn so as to fill the anterior chamber with blood. The eye was bandaged and the ice-bag employed. During the night he was attacked with pain in the eye, which was controlled by a drop of Duboisin 1:200. Rhus. tox. 1 was given internally. A mild plastic iritis followed, but the ultimate result was V. $\frac{2}{20}$.

CASE XII.—Mrs. B.—aged sixty-seven. Cataracta dura immatura O.U. On March 16, 1889, a preliminary iridectomy having been made, the right lens was extracted in the usual manner. There were no complications, and the lids were simply closed with the strips of plaster. The night following, she began to complain of considerable pain in the eye. Ice was used for three days with marked relief. V. $\frac{2}{40}$, which can be improved by a discission.

Remarks.—These twelve cases include all occurring in my practice during the past seven years, since I began the use of ice, in which there has been any complication at the time of operation or afterward; during which time I have made over sixty cataract extractions. The remainder have been perfectly smooth operations, in which no special after-treatment was required, and in all of which good vision has resulted.

An examination of these records shows that three eyes were lost, Cases III., IV., and X. In no one of the three were the complications occurring during the operation sufficient to account for the suppuration which followed. The cause of failure I am, therefore, inclined to ascribe, in the first place, to a lack of care in antisepsis, for in all three, although the face and lids were washed with a strong solution of bichloride of mercury or carbolic acid, yet the ciliæ were not as thoroughly cleansed with the solution as has been

my practice in other cases for the past year or two. This I believe to be a very important point in preparing the patient for operation, as it is at the root of the ciliæ that microbes more often tend to lodge, and so, when the margin of the lid comes in contact with the incision, the wound is liable to become infected. In addition to this, in Case III., the unfavorable termination seemed to have been dependent in a great measure upon a severe toothache at a critical period, forty-eight hours after an extraction, in which the iris had been considerably bruised. In Case IV. the enfeebled condition of the patient, and inability to control the movements, no doubt aided materially in producing the unfortunate result. In Case X. how much the bruising of the wound, which could not have been great, in expelling an unusually large lens, or how much the melano-sarcoma in the other eye, influenced the final result is still an open question. In these cases ice proved of no service.

Turning now to the benefit which may be derived from the use of ice, we find five cases (I., II., V., IX., and XI.) in which serious injury to the iris and other tissues of the eyeball occurred during the operation; and in two of them (Cases V. and IX.) the injuries were so extensive that it seemed utterly impossible to ever save the eyes; in fact, I never saw an eye so seriously wounded, as was either one of the two latter, ever recover without the use of ice. Still, each one of these cases made a rapid recovery, without one unfavorable symptom, and all regained good vision, under the influence of ice and Rhus tox. This is not only my own experience, but also that of the other surgeons in the New York Ophthalmic Hospital, in which institution the ice-bag is now employed as a routine measure in complicated cases of cataract extraction. Many eyes as seriously injured as those above detailed have, in this way, been saved with useful vision. We, therefore, feel warranted in expecting a favorable result, no matter what difficulties attend the operation.

Furthermore, the advantages to be gained from ice are not limited to the prevention of inflammation, but it will be

found of inestimable value in controlling the attack itself, in its incipient stage. Cases VI., VII., VIII., and XII. serve to illustrate this point, although many cases occurring in other clinics at the New York Ophthalmic Hospital could be cited, in which the inflammatory attack was much more severe in its onset than any of the above, and still proved quickly amenable to the ice treatment.

The mode of application of ice after cataract extraction is as follows: The ice is first cracked in small pieces and then put in a rubber bag about three inches in diameter and eight inches in length; around this is wrapped a towel. It is now laid upon the pillow, and the patient directed to turn the face, with the eye, bandaged or unbandaged as the case may be, against the bag. The brow and cheek protect the eye from pressure; still, it lies in so close contact with the ice that a steady degree of cold is maintained, which soon proves very agreeable to the patient. In some instances it is sufficient to allow the ice-bag to simply lie against the temple, thus keeping that side of the face cool. The length of time that it should be employed must depend upon the severity of the case and relief experienced by the patient. At first it must be used *continuously*, night and day; later it may be gradually dispensed with, according to the sensations produced. In this respect the surgeon will be mainly governed by the relief obtained by the patient, whether he continues its use two days or six.

The object in using extreme cold, it must be remembered, is to *abort inflammation or check it in its incipency*. It must, therefore, be used early. It has been employed with advantage after the incision in the cornea has shown a faint line of haziness along its edge, though, as a rule, after supuration of the cornea has begun it will be of no service and may do positive harm.

It has been suggested that the ice-bag, laid against the temple, may be advisable after every case of cataract extraction as a preventive measure, but I cannot see that anything would be gained by so doing, therefore would not

recommend it, unless there were good reasons to anticipate inflammation.

Although it was not my intention in this paper to touch upon the importance of internal medication, yet from a review of the above cases one cannot fail to observe that *Rhus tox.* has been a favorite prescription. Yes, since I first advocated its value in preventing, controlling, or mitigating the severity of suppurative inflammation after cataract extraction,* it has been my main reliance, and has rarely failed me. I desire, therefore, after an experience of seventeen years in its use, to emphasize the aid that it has been to me. Many of my colleagues, I know, can give testimony as to its merits fully as favorable.

It may seem enthusiastic, but it is not the enthusiasm of inexperience, when I declare that with ice, *Rhus tox.*, and thorough antisepsis we reduce the danger of an unfavorable result in cataract extraction to its minimum, and render the operation much less serious than it was formerly considered.

* *N. Y. Jour. of Homœopathy*, March, 1873.

CLINICAL OPHTHALMIC CASES.

BY B. B. VIETS, M.D., CLEVELAND, OHIO.

CASE I.—Mrs. W., seventy-six years old, living in the country. Mature senile cataract both eyes. Made Iridectomy and removed the lens of the right eye. The lids were closed with adhesive plaster, and the patient instructed to remain quietly in bed until the next day, and under no circumstances was the eye to be touched or meddled with. Within three hours after the operation—on account of some discomfort experienced in the eye, and the members of the family being unable to restrain their curiosity as to the patient's ability to see—the plasters were removed, the eye opened, and the patient conducted to an outside door, where the acuteness of vision was carefully tested on objects in the yard and cattle in the distant fields. The healing virtues of potato poultice were then tested for several hours. Notwithstanding the manipulation, and entirely unprotected condition most of the time for the twenty-four hours succeeding the operation, the result was unusually satisfactory; healing with but the slightest degree of astigmatism. Three weeks after the operation, with proper glass she could read fine print.

CASE II.—Mrs. F., sixty years old. Nuclear cataract of the right eye; pinhole pupils; could see the hand, but unable to count fingers with the affected eye. Made an upward iridectomy at my office, and closed the lids with a narrow strip of adhesive plaster. With two thicknesses of veil over her face, the patient started, as was supposed, to take the street car for her boarding-place. Instead however, she walked several blocks to the business portion of the city, and spent several hours shopping—going from store to store. The next day, contrary to advice, she spent the entire day in the stores. The morning of the third day she went to her home, twenty miles distant, without either plaster or bandage to protect the eye.

Six months after, a well-known oculist of Philadelphia, Pa., where she was visiting, said to her the operation was one of the "cleanest cut" he ever saw. Vision $\frac{20}{30}$.

CASE III.—Mr. S., thirty years old, boilermaker. A chip of steel about as large as the end of the little finger flew from the chisel of a fellow-workman, striking the patient in the eye, making a very jagged, irregular cut five-eighths of an inch in length through the sclerotic at the nasal side of the cornea and directly over the ciliary region. More or less of the vitreous had escaped, so the ball was quite soft. The lens and pupillary margin of the iris were dislocated backwards about one-eighth of an inch. Sight, perception of light only. Other physicians had advised immediate removal of injured eye. Applications of cold water were made for forty-eight hours. After this the eye was protected by a small pledget of cotton and one thickness of flannel bandage. After the wound had healed, paracentesis was performed three times at intervals of two days, with the result of bringing lens and iris forward to normal position. Nothing more was done than above stated, and five weeks after the injury he could read coarse print.

In Cases I. and II., we have additional evidence in favor of doing away with the bandage after cataract or iridectomy operations, and the uselessness of confining patients to the bed, or sitting posture even. From Case III. we get a hint that in eye surgery it is better to be conservative, and not attempt to do too much, or attribute good results attained in every case to any innovation we may practice. The above are but a few of the many cases the writer might report illustrating points mentioned.

THE USE OF THE CHEMICAL GALVANO-CAUSTIC IN ATROPHIC RHINITIS.*

BY H. H. CRIPPEN, M.D., SAN DIEGO, CAL.

As in a previous article† I have already had the honor of calling attention to the use of the galvano-caustic current in catarrhal affections, and as the armamentarium and technique of the treatment were there fully described, I will confine myself here to clinical histories.

Mrs. A. N. B.,—aged forty-two years, first consulted me, December 4, 1888, for a chronic throat trouble, as she expressed it. Wakes up at night with throat so dry that she must have a drink of water to relieve it. Local examination showed an atrophic pharyngitis. On further questioning it was found that she often drew down from the nose into the throat thick yellow or greenish crusts. Breath very offensive. Nasal examination showed on the right side almost total obliteration of the turbinated bones. The mucous membrane was covered by crusts and ulcerated around the posterior nares. After using the spray a large cast of the posterior nares was expectorated, and then a clear view of the pharyngeal vault could be seen.

On the left side, the turbinated bones were hypertrophied to considerable extent, and presented only the objective symptoms of a hypertrophic catarrh.

Daily treatment with the atomizer was instituted (solution of borax, 15 grains to the ounce), and the galvano-caustic current was applied after the mucous membrane was cleansed by the spray.

*Read before the American Institute of Homœopathy, June, 1889.

† "The Treatment of Hypertrophic and Atrophic Affections of Nasal and Pharyngeal Mucous Membranes by the Chemical Galvano-caustic." THE JOURNAL OF O., O., AND L., Vol. i., No. 2.

The negative pole, in the shape of a large round sound, insulated to within one-half inch of the end, was inserted so as to make application about the posterior nares. A current of ten milliamperes was all that could be taken by the patient at the first sitting, but subsequently this was increased until I gave from twenty to thirty milliamperes. (As we are speaking only of the atrophic form, I omit mention of the treatment of the hypertrophic catarrh of the left side.)

For one month, the daily spray was in use, and twice a week during this time the galvano-caustic negative was applied to various parts of the membrane. At the end of this time the tendency to the formation of crusts was decidedly less, and on withdrawal of the electrode it was covered by normal mucus and not by the foul pus-like secretion which was at first found on it.

Treatment by the spray twice a week was now adopted, with the galvanic current once a week. This was continued until March 1, of this year, when examination of the right side showed that there was no disagreeable character of the breath remaining. The nasal cavity appeared much narrowed by the regeneration of the mucous membrane, and no crusts or ulcerations could be seen. Further, the patient says she has not had any crusts or mucus dropping into the throat for a long time.

The galvano-caustic treatment was now limited to once in two weeks and at last date of examination, May 5, the patient was discharged in a better condition than I have ever before been able to obtain in similar cases by any other remedy.

The second case is that of Miss C. B., aged seventeen years. First examined June 10, 1888. The young lady is well proportioned and in apparent good health, but she complains of an almost continual "cold in the head." There is discharged from both sides of the nose an abundance of greenish crusts, and the parents complain of the fetid character of her breath. She has violent headaches very often, vertigo occasionally, and frequent nausea and inclination to vomit, apparently provoked by the mucus which is constantly falling into the pharynx. Objectively, I found the nose a little flattened at the base. The nasal mucus membrane is dark red, ulcerated posteriorly in some small areas; the inferior turbinated bones are completely effaced; the middle turbinated bones are only of small size, but have a light reddish, glazed appearance. At the same time the nasal fossæ contained

large masses of mucus of greenish color, which gave the breath a very offensive odor.

Treatment was begun by the cleansing of the mucous membrane with the spray and the application of the galvano-caustic negative. Six treatments were given of a current of 12 to 15 milliamperes. At the same time the patient was advised a daily douche of the borate of sodium.

After the second sitting the headache and nausea disappeared. After the fourth treatment there was no return of vertigo. After the sixth treatment the patient disappeared, and I heard no more of her until January, 1889, when she returned in quite a satisfactory state. There was no odor from the nose, and she complained no more of the "cold in the head." The only troublesome symptom remaining is the occasional manifestation of a small crust dropping into the throat. The galvano-caustic negative was renewed; six treatments of 12 to 15 milliamperes were given. A few days ago, May 15, the patient was seen again. All the symptoms had disappeared. Since the last treatment the patient had not had any more of the expectoration of crusts. The state of the mucous membrane is very satisfactory; it has lost its dry glazed appearance, and the greenish mucus and crusts have given place to mucus of quite the normal character. As a matter of prudence I advised a douche of one-half teaspoonful of borax to the pint of water three times a week, and discharged the patient.

These two histories are those of typical cases of atrophic rhinitis, and show something of the curative effect of the galvano-caustic in this disease. From my former experience with similar cases I feel certain that the use of electricity in the form of the chemical galvano-caustic gave more relief than any other means I could have employed.

REVIEWS.

TRAITÉ DU GLAUCOME. Par A. FERRET. V. Adrien Delahaye, libr. edit., Paris, 1888.

TREATISE ON GLAUCOMA. By A. FERRET. V. Adrien Delahaye, publisher, Paris, 1888.

In a pretentious work of 222 pages Ferret, of the hospital of Meaux, describes glaucoma, as he has seen it in practice. However, of all this formidable array of reading matter, the first part, of 86 pages, is devoted to a review of the history of the researches and of the opinions on this subject, from the time of the first writers to the date of the book, so that one finds really less of original matter than expected. We say "to the date of the book"—1888—for the reason that much of interest concerning glaucoma was elicited at the seventh International Congress of Ophthalmology, which took place after the book was in type.

But even the history of glaucoma, though it takes up much space, is not to be despised; the struggles to perfect its therapia, the conflicting opinions as to its nature, and the researches into its pathology, all these have for us a special interest, and this from the pen of A. Ferret really attracts one in spite of what some are pleased to term "dry details." In the beginning of this history of the knowledge of glaucoma is to be found a criticism on the translation of *γλαυχός*, the author maintaining that the correct signification in its translation from the Greek is *bluish* or *bluish-gray*. Now, since the early writers comprised under this term, *γλαυχωμα* or *γλαυχωσις*, all the opacities of the pupillary field, and especially included under this description the opacities of the crystalline, it is more logical to believe that *glaucoma*, as a synonym of the conditions we attribute to it at present, is better translated blue than green, and that it derives the use to which we apply it to-day rather from a confusion of pathological conditions than from any translation of blue, green, or otherwise.

From here, the author passes in review the various memoirs on the subject emanating from both lesser and greater authorities. The name of von Graefe arrests our attention for a moment, and we find all credit accorded to the illustrious ophthalmologist for his operation of iridectomy in glaucoma. Against de Wecker the author appears to hold a spite of some kind, for he criticizes the article on glaucoma in de Wecker's *Traité complet d'ophtalmologie* in a very savage manner, saying there are many contradictions in the work, and that one of the opinions violates one of the elementary laws of hydrostatics. Finally, the lengthy history is completed by an observation that is only too true. Says the author: "Having demanded of one of the most distinguished ophthalmologists of the present day (who, we suspect, is Galezowski) what his opinion was on the nature of glaucoma, he replied that he was not able to give an opinion, but that 'he is most wise who confines himself to conjectures only.' " "Glaucoma," added he, 'is probably due to a disturbance of the lymphatic circulation, perhaps at the border of the sheath of the optic nerve. Is this a chronic inflammation or a vaso-motor disturbance? One can affirm nothing.' "

As to etiology, the author gives the usual list of causes, but exposes his tendency when he declares that "the great cause which dominates all the etiology of this malady is arthritism, acquired or hereditary, but especially this last, which one finds in all subjects who are able to give precise information as to their antecedents." Farther than this Ferret exposes his diathetic tendencies when he says that glaucoma is a "diathetical choroiditis." One point he misses in regard to the diathesis, for he only sees in the descendants of the arthritic, of the syphilitic, and of the alcoholic the tendency to scleroses, and allows the fact to escape him that these very same diatheses shade off into the neuropathic diathesis in which the predisposition to vaso-motor troubles predominates. If, then, we were able to prove that glaucoma is, at the base, of vaso-motor origin, we would arrive more closely at its relation to diathesis. As it is, we can only say, with the distinguished ophthalmologist already quoted, "Is it a chronic inflammation or a vaso-motor trouble?"

For the remainder of the work, pathological anatomy, symptomatology, and treatment, we can only say that, with one exception, it is a faithful reflex of the knowledge of glaucoma at

the present time, to which the author has given such special character as he has derived from experience. But this one exception is important; inasmuch as we recognize therein a thought that leads to a valuable suggestion. Ferret divides ocular troubles, in which we find the tension increased, into *true glaucoma* (his diathetical choroiditis) and glaucomatous affections; saying that hypertonus is only a symptom of glaucoma, and that this latter should not be used as a synonym for increase of tension, as so many writers employ it.

As an outcome of this, it appears that the knowledge of ocular affections in which there is hypertonus, would be placed upon a surer foundation were the term glaucoma confined to an entity of disease, be it a choroiditis diathetica or a vaso-motor affection. Or, even better, may we not hope to see the term glaucoma replaced by one more closely corresponding to our present nomenclature of disease, thus enabling us to discard one or more of those legacies from the ancient writers, which had their origin in a confused and imperfect knowledge of pathological conditions?

H. H. CRIPPEN.

HAY FEVER OR RHINITIS VASO-MOTORIA PERIODICA AND ITS RADICAL CURE. BY E. LIPPINCOTT, M.D. Chicago: A. L. Chatterton & Co. 1888.

Dr. Lippincott's book is a small monograph of 76 pages, giving an excellent *résumé* of the more prominent views pertaining to-day, concerning the pathology and therapeutics of hay fever. The more original part of the book is an enthusiastic advocacy of Naphthaline as a remedy and prophylactic.

"This remedy," he says, "is applicable to more cases of hay fever, and to more forms of it, and better results are obtained from its use in all stages, than from any other drug. As a prophylactic, a dose of the 2x or 3x trituration, if given three times a day, will in many—though not in all—instances, give immunity from an attack." The drug appears to be more effica-

cious in the June than in the August paroxysms. The author does not neglect the surgical aspects of his cases, but recognizes the two factors constantly present—the general susceptibility and the local sensitive areas ; the former being removed preferably by drugs homœopathically selected, while the latter may require surgical intervention. Either may of itself lead to a cure, or it may become necessary to combine the two, working from both ends as it were. Even at best, however, we are, in many cases, required to fall back on the selection of a proper climate for residence during the period of susceptibility. The usual list of remedies is given with their indications, the only variation from the established form being that the drugs are arranged in the order of the author's idea of their clinical importance instead of alphabetically ; a method which is the more to be commended because of the slight variation in symptoms presented by various cases.

L.

LECTURES ON THE ERRORS OF REFRACTION AND THEIR CORRECTION WITH GLASSES. By FRANCIS VALK, M.D. Octavo, pp. 241. New York : G. P. Putnam's Sons. 1889.

In his preface the author says : " I know that many text-books treat this subject in perhaps a more scientific manner than it is here presented, but I have endeavored to make this work as simple and practical as possible." There is no question but that Landolt and others have treated the subject of Refraction and Accommodation in a " more scientific manner," but it is also true that Dr. Valk has made his work " simple and practical."

The book consists of a series of eleven lectures. In the first lecture, the Anatomy of the Eye, so far as it relates to refraction, is briefly considered. Following this are lectures upon Refraction, Emmetropia, Hypermetropia, Myopia, Ophthalmoscopy, Muscular Asthenopia, Astigmatism, Retinoscopy, Presbyopia, and Illustrative Cases. The description of the refractive media and the explanation of the theory of refraction, with its various

anomalies, are given in language so concise and clear that any student, even though unacquainted with optics, need not fail to understand. The simple rules, however, laid down for prescribing glasses in the errors of refraction, might have been extended so as to cover the ground more fully, and to this could have been added with advantage the treatment independent of glasses. Especially is this true in relation to general rules for the prevention of the increase of progressive myopia, and the treatment of the complications arising therefrom. The lectures upon ophthalmoscopy and retinoscopy are particularly clear and well expressed, but the lecture upon muscular asthenopia cannot be considered as up to our present knowledge of muscular action. The illustrations and diagrams, of which there are ninety-one, render the text throughout most easily understood.

Taking the book as a whole we are pleased to commend it to the student and general practitioner who desires to obtain a concise, yet clear, knowledge of the errors of refraction. The name of the publishers is sufficient guarantee that the typographical work has been well done ; in fact, the quality of the paper and clearness of the type and illustrations deserve special mention.

N.

ELECTRO-THERAPEUTICS, OR ELECTRICITY IN ITS RELATION TO MEDICINE AND SURGERY. By WILLIAM HARVEY KING, M.D. Octavo, pp. 149. New York : A. L. Chatterton & Co. 1889.

The above book, which has just appeared from the press of A. L. Chatterton & Co., is a valuable addition to the library of any physician. The size of the work gives no idea of the amount of information contained therein, for the ability of the author to condense his thoughts is unusual. It is, furthermore, the condensation of knowledge gained from practical experience, and not a compilation from the work of others. For example, the experience which Dr. King obtained from several months' study at the New York Ophthalmic Hospital upon the use of electricity in

diseases of the eye, ear, and throat, is all to be found in about four pages. His statements, in these departments, are reliable and clearly made, with, perhaps, one exception, on page 110, where he says that the galvanic current is "useful in the sequelæ of inflammation of the optic tract," which statement is particularly indefinite.

The book is one of the best practical treatises upon medical electricity, its mode of application, and its sphere of usefulness in medicine and surgery, that we possess. N.

AMERICAN RESORTS, WITH NOTES UPON THEIR CLIMATE. BY BUSHROD W. JAMES, A.M., M.D. Octavo, pp. 300. Philadelphia : F. A. Davis. 1889.

Any one desiring to select a summer or winter resort will find this book of decided aid, particularly when health is a factor to be considered. Both physicians and invalids will obtain information of value from its perusal. All the most prominent resorts in both North and South America receive mention, and their influence upon various chronic diseases is here discussed. To this is added a "translation by Wm. S. Kauffmann of those chapters of 'Die Klimate der Erde,' written by Dr. A. Woeikof, of St. Petersburg, Russia, that relate to North and South America, and the islands and oceans contiguous thereto." A large map of the United States and Mexico accompanies the book. The presswork and quality of the paper are hardly equal to other works by the same publisher. N.

IN MEMORIAM.

PROF. FRANCIS CORNELIUS DONDERS died at Utrecht, March 24, 1889, in the seventy-first year of his age.

"Donders is dead"; so flashed the news across the ocean and around the world, and sad were the hearts of ophthalmologists in every clime when they heard it, for they realized that a master spirit had winged its flight into the great Beyond. We had almost said *the* master spirit in ophthalmology, for since von Graefe died, Donders, his colleague, has been revered, not only as a pioneer, but as the Father of ophthalmology. The depth and extent of this feeling we see clearly expressed at that gathering, upon May 27 and 28, 1889, of his admirers, friends, and colleagues from all lands, who came to celebrate the anniversary of his birth, and do honor to that venerable master-mind which retained its acuteness unimpaired at threescore years and ten.

It is difficult for us at this day to realize how much the science of ophthalmology is indebted to any one man, for the strides have been so rapid in the past quarter of a century that the work of any one becomes soon buried in the mass of new discoveries. Not so, however, with Donders, for, stimulated by the rising genius of von Graefe, he early turned his mind from general physiology to work in the then unknown field of ophthalmology; and it is due to a great extent to his untiring zeal, his mathematical knowledge, and his earnest labor, that ophthalmology has been placed upon its present scientific basis. As an indefatigable worker and enthusiastic student he had few equals, and no superiors. As a writer he was most renowned, especially by his researches into the theory of refraction and accommodation, but his genius could not be circumscribed within the limits of any one portion of the subject, as evidenced by his valuable contributions in the *Archiv für Ophthalmologie* (of which he was an edi-

tor), and in other journals. As a teacher he was pre-eminent, and those who listened to his teachings will ever treasure the wise counsel they received from his lips.

His classical work upon the "Anomalies of Accommodation and Refraction of the Eye," issued over twenty-five years ago, will ever stand forth an imperishable monument to his memory. And although we know that no eulogy is required to enhance the fame or increase the glory which enhaloes the name of Prof. Donders, yet we are happy to pay our small tribute to the illustrious dead.

DR. W. FLETCHER WILSON, of Denver, Colo., a graduate of the College of the New York Ophthalmic Hospital, died April 19, 1889, from an overdose of morphine, taken by mistake, to relieve his insomnia. Although a young man, he had acquired a large practice and an extended local reputation as an ophthalmic surgeon.

MISCELLANEOUS NOTICES.

CORRECTION.—In the article upon Retinoscopy in the April number of this Journal, Dr. Hasbrouck referred to a paper by Dr. John H. Payne, in the *New England Medical Gazette*, and questioned the originality claimed by the latter in directing the patient to fix his eyes on the forehead when making the examination. Dr. Payne now calls the attention of the editor to the fact that his object in the examination is to relax the accommodation of the patient, and that he therefore advised her to direct the "eyes to the blank darkened space *just above* the level of the head," and not to the forehead. An unfortunate paragraphing of Dr. Payne's article would easily lead one to a misunderstanding of his real meaning.

COLLEGE OF THE NEW YORK OPHTHALMIC HOSPITAL.—At the Commencement Exercises held April 9, 1888, the following gentlemen received the degree of "Oculi et Auris Chirurgus":

F. G. Ritchie, M.D., Worcester, Mass. ; Geo. W. McDowell, M.D., New York City ; W. W. Speakman, M.D., West Chester, Pa. ; F. L. Clark, M.D., Providence, R. I. ; J. H. McLellan, M.D., Lambeth, Canada ; E. T. St. John, M.D., Barbadoes, W. I. Certificates of Attendance in Laryngology were granted to Geo. R. Bowen, M.D., San Antonio, Texas ; W. H. Connelly, M.D., New York City ; J. B. Garrison, M.D., New York City ; W. E. McCune, M.D., Brooklyn, N. Y.

At a meeting of the Faculty of the College of the New York Ophthalmic Hospital held April 5, 1888, the following officers were elected : Henry C. Houghton, M.D., President ; Geo. S. Norton, M.D., Dean ; Chas. C. Boyle, M.D., Secretary.

The Annual Announcement of the College of the New York Ophthalmic Hospital, for the session of 1889-90, is now out, and can be obtained on application to the Secretary, Dr. Chas. C. Boyle, 167 W. 34th Street.

WANTED.—Dr. T. P. Wilson, of Detroit, Michigan, desires to obtain a copy of a book entitled “A Treatise on Some Practical Points Relating to Diseases of the Eye, by John C. Saunders, with additions by J. R. Farre, Philadelphia, 1821.”

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY, & LARYNGOLOGY.

EDITOR,
GEO. S. NORTON, M.D.

ASSISTANT EDITOR,
CHAS. DEADY, M.D.

THREE CASES OF TUBERCULAR ULCERATION OF THE LARYNX—REMARKS IN RELATION TO TREATMENT.*

BY CLARENCE E. BEEBE, A.M., M.D., NEW YORK.

CASE I.—On Friday morning September 28, 1888, through the courtesy of Dr. J. F. Talmage, of Brooklyn, Mrs. S. presented herself at my office for examination and opinion. The subjoined brief data in relation to her antecedent history were elicited : Pulmonary phthisis "hereditary" (the expression is that of the patient) on the mother's side ; several members of the family having fallen victims to it. No hereditary predisposition on the father's side.

In 1873 Mrs. S. was delivered of her first child, and a short time subsequently was seized with a severe attack of what was termed pleurisy, from which recovery was extremely tedious and unsatisfactory in many particulars. Certain statements made by Mrs. S. induce the belief that complete restoration to health was never attained. As soon as her condition would admit of it, she went to Colorado, and after a brief sojourn there she sailed for Europe. Prior to 1873, although never what could be regarded, in the strict acceptance of the term, a strong woman, she had at no time suffered from a severe illness of any description.

During 1877 her second child was born, and once more "pleurisy" ensued ; but the attack was much less severe than the first. Notwithstanding this fact, for a second time convalescence was protracted and altogether unsatisfactory.

* Read before the Homœopathic Medical Society, County of New York, March 14, 1889.

During the autumn of 1881 she "caught" a severe cold, which, according to her own statement, almost eventuated in "pleurisy." The following spring she improved somewhat, her weight being 115 pounds—a slight gain over previous records; but this was speedily lost in consequence of overwork, mental and physical, and a condition of systemic depression set in, which nearly culminated in typhoid fever so-called. Her condition was regarded at that time as very precarious, and Mrs. S. herself assigns the beginning of her present trouble to this period. My own impression is, that the initial attack of pleurisy in 1873 must be regarded as the exciting cause, acting in conjunction with and dependent upon the predisposing cause to be discovered in the heredity to which reference has already been made. She certainly has never enjoyed even fair health since then.

Cough began early in 1883, and has continued to the present, with varying intensity. Then, as now, the sputa were principally frothy, stringy, adhesive, albuminous, translucent, generally white, occasionally yellowish. Mrs. S. is now suffering from dyspnœa, which is increasing in intensity. There is a sensation of sub-sternal pressure, but no pain is experienced in any portion of the chest. Emaciation is well-marked; anæmia ditto. Pulse 120, temperature 101°F. Febrile disturbance is invariably worse in the afternoon about five o'clock, and continues into the night, terminating in the customary perspiration. Cough is rather infrequent, and exquisitely painful. Unquestionably this feature would be more marked were it not for the suffering attending the act, and the resultant effort at checking it.

Deglutition is almost an impossibility in consequence of the dysphagia. Pain is worse on the left side of the throat, and radiates in the direction of the ear. Voice is almost lost. Dysphonia well pronounced. Appetite fair only. All functions of digestion are performed with regularity. The patient's age is 36 years; still, sundry manifestations of the menopausal period are existent.

Physical examination evidences the presence of an aortic obstructive murmur, with slight cardiac hypertrophy. Anæmic murmurs everywhere. Both lungs are diseased, with a cavity of moderate size in the right, and the characteristic concomitant condition in the left. The laryngoscope reveals an anæmic and slightly œdematous epiglottis. Both lateral glosso-epiglottidean

folds are infiltrated and ulcerated, particularly the left ; the left ventricular band and fossa innominata ditto. The inter-arytenoideal structures are œdematous and badly ulcerated. In fact, the membrane lining the entire laryngeal cavity and adjacent structures presented the peculiarly pale, œdematous, sodden appearance which is so characteristic of the phthisical ulceration in its later stages.

With a single exception, the condition, as pictured in the mirror, is in the highest degree unfavorable. Fortunately for the patient's comfort, and the outlook for the future, the epiglottis itself is free from the ulcerative process, the lateral glosso-epiglottidean folds, as already noted, being the only portions implicated. This fact, coupled with the absence of excessive œdema, renders the patient's sufferings less intense than they would have been had the epiglottidean implication been more marked. Nevertheless, the dysphagia is excessive, and the outlook proportionately unfavorable.

In formulating a prognosis in cases of laryngeal phthisis, as is well known, much depends upon the *locale* of the ulceration, and the degree of intensity to which it has attained. When it is concentrated below the epiglottis, and within the cavity of the larynx proper, the chances of a speedily fatal issue are much less than when the epiglottis bears the brunt of the process, and *vice versa*. One singular feature about the case, appreciable to laryngologists, is the following: As already noted, the right lung evidenced the destructive process in much greater degree than the left. In the larynx and adnexa the ulceration, etc., were much more developed upon the left side. In the majority of cases a certain symmetry or uniformity is observed, whenever the pulmonary and laryngeal disease is coexistent; *i.e.*, whenever the left lung is implicated, the left aspect of the larynx follows suit, etc. The diversity existing in the case under consideration may have been due to the fact that although the right lung presented evidences of much greater destruction than the left, the left was, at the time of examination, far more *actively* implicated than the right. This is

the probable explanation, for the reason that on several occasions before and since I have observed that the *intensity* of the laryngeal disease was almost invariably dependent upon the *activity* of the pulmonary disease on the corresponding side.

Many additional items of practical interest in relation to the case might be adduced, but I think sufficient has been said to prove beyond question its highly unfavorable nature, and I might say its almost hopeless outlook.

As far as the pulmonary lesions were concerned, although these were certainly advanced and as certainly advancing, no immediately fatal issue could be anticipated. But complicating and secondary to these we find the pathological process implicating in extended degree much of the constituency of the larynx, creeping along the glosso-epiglottidean folds, and gradually encroaching upon the epiglottis, thus affording an almost certain interference with the act of deglutition, which, as is well known, must of necessity terminate in only one way, viz., starvation, unless the progress of ulceration could be checked.

The patient's physician was communicated with and the following plan of treatment advised and adopted, Dr. Talmage kindly permitting me to see the patient from time to time, for purposes of observation.

Each day at first, and every second day subsequently, the ulcerations and surrounding structures were thoroughly cleansed by spraying them with a solution consisting of chloride of sodium 3 ss, Price's glycerine $\frac{3}{4}$ ss, phenol sodique gtt. 20, and water $\frac{3}{4}$ viij. This was immediately succeeded by a solution of the peroxide of hydrogen, 12 vol. solution, one part in five of water. As soon as the evidences of oxidation had disappeared, the parts were sprayed with a 20 per cent. solution of lactic acid at first, and later on a 50 per cent. solution. Iodoform powder was then applied thoroughly and kept *in situ* for as long a time as was possible. Absolute rest of the voice was insisted upon, and the most rigid observance of precautions against local irritation of any and all descriptions enforced.

Internally, Iodide of Arsenic $\frac{1}{100}$, and Ferrum phos. $\frac{1}{100}$, were

prescribed, together with a reliable emulsion of cod liver oil. Nourishing food in such form as could most easily be swallowed and assimilated was indulged in; digestive functions, etc., were attended to, and all measures which special conditions might from time to time demand were adopted. It is manifestly impossible, and not to say unnecessary, to enter into further details in relation to the domestic management of the case. Suffice it to say everything was done for the comfort, etc., of the patient, that the most thoughtful care on the part of the attending physician and friends could suggest.

Cocaine was held in reserve. Only once, I believe, was it employed, and then only because the agony in the act of swallowing was so great as to be unbearable. Fortunately the patient was endowed with indomitable pluck, and decided to endure the suffering in preference to exposing her larynx, etc., to the possibilities of augmented ulceration induced by the reactionary properties of the cocaine hydrochlorate.

Improvement was manifest almost from the beginning of the treatment, which was conducted in all its details by Dr. Talmage. On October 4 the improvement was slight, but on October 13 my notebook discloses the fact "that improvement is marked, the ulceration in the left glosso-epiglottidean fold, the left ventricular band, and the inter-arytenoideal space having nearly disappeared." There was much less pain on deglutition; cough had lessened, and the health in general was much better, although an unusual degree of pressure of different kinds had been brought to bear upon the patient. Subsequent visits were made on October 25 and 27, November 3 and 17, and December 14. On the last named date Mrs. S. had little or no pain on deglutition, little or no œdema, ulcerations were completely healed, and about the only lesion of importance remaining was a slight degree of tissue-infiltration at the sites of the old ulcerations.

The pulmonary lesion apparently kept pace with the laryngeal, as the constitutional symptoms, fever, etc., disappeared. Since December 14 I have not seen the patient, but have repeatedly heard from her, the most recent message having been received less than a week ago. On one or two occasions she has been confined to the house by illness,

but the laryngeal trouble has not manifested itself by a single symptom.

In the two succeeding cases, I shall simply refer to the objective symptoms, as elicited by examination at their first visit, and state the result of the treatment.

CASE II.—On Friday, October 19, 1888, Dr. Lewis Hallock summoned me to see in consultation Mr. X., who was suffering from pulmonary complicated by laryngeal phthisis. The patient was seen at his own home, his condition being such as to preclude the possibility of his visiting me at the office. For a long time he had been afflicted with a very troublesome diarrhœa, which must unquestionably be regarded as largely instrumental in producing the enfeebled systemic condition obtaining at the time of the first examination.

His right lung was found to be infiltrated; epiglottis enormously enlarged, œdematous and hyperæmic, rendering investigation of the structures beneath almost an impossibility. A large ulcer was discovered on the right glosso-epiglottidean fold and one on the right ventricular band. Both vocal bands were hyperæmic, but not ulcerated. The tissue at the inter-arytenoid-eal space was œdematous: right ary-epiglottic fold ditto. The patient experienced intense pain with the slightest act of deglutition, and for some time past had been unable to swallow anything but semi-liquid substances, and these only with great suffering; In this instance the pain was confined almost entirely to the right side, and was attended by the customary radiation to the ear. He was much enfeebled, greatly emaciated, and very anæmic. Cough was by no means a prominent symptom; in fact, the patient was inclined to the belief that he coughed very rarely. The impression was a mistaken one, however, as on several occasions while under observation his cough was found to be not only quite frequent, but at times very severe. It was invariably repressed in consequence of the intense pain attending it.

Much the same treatment as in the first case cited was adopted, and persevered in until November 17. During this interval the only change noted was in relation to the ulceration and general condition, the former disappearing, the latter evidencing marked improvement, especially in the matter of strength. Although the ulcerations had apparently healed, the intense pain experienced

with each act of deglutition was modified in only a slight degree, while the tissue-infiltration remained the same as before. The Iodide of Arsenic was now replaced experimentally by the Iodide of Potassium, the latter drug being continued until the 27th, but without perceptible result.

It will be remembered in the description of the image as portrayed in the mirror at the initial examination, hyperæmia rather than anæmia was unusually prominent, and although all other concomitant symptoms pointed indubitably to the tubercular nature of the lesion, it was thought that possibly (?) the case might belong to what is termed the mixed class. It is a well-recognized fact that syphilitic and tubercular or phthisical disease may be coexistent. The Potassium, if it did anything, served to induce an aggravation, and was discontinued, and the Arsenicum-iodide returned to. In addition, a solution of menthol and the oil of sweet almonds, one part in five, was now employed, at first in the form of vapor for inhalation, and subsequently in bulk, injected upon the epiglottis and into the larynx by means of a curved syringe devised for the purpose. This was done daily, and with the result of materially reducing the swelling, but modifying the pain in only slight degree. There was great temporary relief, which obtained for a brief time. The patient's general condition has markedly improved, and I am informed the diarrhœa is only slightly troublesome at the present time. *

CASE III.—On January 15, 1889, through the courtesy of Dr. Wm. Tod Helmuth, Mr. Y., aged twenty-eight, presented himself at my office for examination and treatment. The case was one of tubercular ulceration of the pharynx proper, tonsil, and larynx, complicating and secondary to pulmonary disease.

I shall not consume your time by narrating the many data of

* The patient was seen at irregular intervals until June 18. The improvement was slow, but very positive in every particular save one—the epiglottic infiltration. This was sufficiently marked to still render satisfactory examination of the underlying structures impossible. On the date mentioned, however, change for the better was very pronounced, and the improvement continued until early in July, when he was last seen.

practical interest in relation to the antecedent history of this patient. Suffice it to say, the family record was unfavorable in the highest degree; in fact, could not easily be worse, and the patient's condition, local as well as general, was one of the most aggravated it has ever been my lot to investigate. Emaciation pronounced, anæmia ditto. Cough frequent, dry and attended by great suffering; voice aphonic; dysphonia. The pain on the slightest effort at deglutition was much greater than in either of the preceding cases.

On examination of the pharynx, the uvula was found to be greatly swollen and elongated, lying in apposition to the right tonsil, which was enormously enlarged and completely covered by an ulcer with ragged edges. Upon the posterior pharyngeal wall a second ulcer was discovered, fully an inch in diameter, its right border approximating the junction of the pharyngeal wall and the right posterior palatal arch; its opposite or left border extending a little beyond the median line. Its periphery presented the same ragged aspect noted in the amygdalar ulceration, and the floor of both ulcerations was covered with a greenish-yellow secretion.

The rhinoscopic mirror revealed nothing but engorged and tortuous capillaries, with characteristic anæmic interspaces.

The laryngoscope evidenced the presence of an epiglottis almost filling up the lower pharyngeal space, œdematous, and ulcerated on the right side close to its lingual attachment. The right ary-epiglottidean fold was largely œdematous, and ulcerated at the arytenoideal extremity. The posterior commissure was ulcerated and œdematous. Vocal bands invisible in consequence of the overlapping of the ventricular bands. Gagging was incessant at the first examination, and attended by the extrusion of large quantities of frothy, muco-purulent secretion. The examination itself, though prosecuted with the greatest care, occasioned great suffering to the patient. As already noted, the pain on swallowing was intense, and for a long time the patient had been unable to swallow anything of the slightest consistency; and even the simplest things caused such exquisite agony he would refuse everything until the pangs of hunger became unbearable.

Both lungs were found to be diseased, especially the right—the left in reality performing the duties of both. The customary

symptoms of pulmonary consumption, subjective and objective, obtained, but do not demand detailing in this connection.

The case was so aggravated a one in all particulars, the most unfavorable prognosis was given.

Treatment similar in many respects to that adopted in the preceding cases was carried out in this.

Local measures—Disinfectant solution, peroxide hydrogen, lactic acid, and iodoform.

Internal measures—Iodide of arsenic, Ferrum phos., cod-liver oil, nourishing food, stimulants, and tonic in small quantities, etc.

In two particulars, a different method was followed. At the first and second visits, subsequent to a thorough cleansing of the ulcerations, a solution of the nitrate of silver, grs. 40 to $\frac{3}{4}$ i, was carefully applied. The menthol solution, to which reference has already been made, was directed to be vaporized and deeply inhaled for several minutes, four or five times daily.

Prior to the inception of the treatment, the patient suffered from afternoon fever, beginning in the neighborhood of five o'clock and continuing until ten. The night sweats were copious and extremely exhausting. Sleep was restless and at times impossible. Fortunately the appetite was totally wanting; its absence relieving him of the suffering induced by hunger and the inability to gratify it.

For two weeks the patient received treatment at the office every second or third day; and although the trip was a long one, his residence being in Brooklyn, and the jolting of his carriage greatly fatiguing him, at the end of this period there certainly was some improvement in the appearance of the ulcers, and the suffering had been somewhat modified. Early in February, in consequence of undue exposure or some other cause which it was impossible to definitely determine, symptoms of acute otitis media on the right side manifested themselves, and for two days and nights his sufferings were greatly augmented. The attack was checked by appropriate remedies, but not without increasing greatly the systemic depression. His visits to New York were now discontinued, and twice each week I saw him at his own home. Intrinsic improvement was evidenced in every particular, and by the end of the month the ulceration had entirely disappeared, and with it all pain, etc.

At the present time not a trace of the ulceration can be discov-

ered. The epiglottis is gradually assuming its normal configuration, although it is still sufficiently enlarged to afford a slight degree of difficulty in the act of deglutition. No pain is experienced ; fluids and semi-solids being swallowed with comparative comfort. I have not allowed him to make the attempt at swallowing solids as yet, for fear of the the production of irritation, and the possible recurrence of the œdema. The fever has gone, and with it the night sweats. Sleep is natural and refreshing. The patient is rapidly regaining strength, and, in consequence, is now able to enjoy somewhat extended walks in the open air when the weather admits of it, with little or no fatigue. Dyspnœa is no longer a distressing feature of the case. Cough, though still present, is only occasional, and attended by no pain. The sputa have nearly ceased, and what little secretion remains is easily ejected.

The voice, although still wanting, evidences augmentation in power. Whether the future will bring with it complete restoration of the vocal functions, I am not prepared to say. Such development is of course possible, and may take place, provided the almost phenomenal improvement manifested in connection with the other lesions should characterize those implicating the vocal apparatus.

At the time Bergeon's method of treatment of pulmonary tuberculosis created such a furor in the lay as well as the medical world, the question naturally arose in my mind as to its possible efficiency in the management of tubercular disease of the larynx. This query appears to be answered with some degree of definiteness by Dr. Charazac, who in writing in the *Revue Médicale de Toulouse* for September 1, 1887, calls attention to the *injurious* effects of the use of sulphur waters in cases of tuberculosis of the larynx. The sulphides, he says, excite a congestion of the laryngeal mucous membrane, and if their use be persisted in, what was a nearly dormant tuberculosis of the larynx may pass into an acute miliary tuberculosis.* If this conclusion be correct, and certainly I can see no reason to think otherwise, we possess in it a valuable proof of the homœopathicity of the Iodide of sulphur in the treatment of

* *Med. Rec.*, January 21, 1888, p. 84.

pulmonary, as well as laryngeal, tuberculosis. On many occasions, in cases of a certain type, I have found the drug markedly efficient.

In the later stages, insufflations of iodoform, iodol, and boracic acid, with or without one-quarter or one-sixth of a grain of morphia, are strongly recommended by some authorities.* In the distressing dysphagia, relief is experienced by the insufflation of morphia and starch, or by a spray of cocaine shortly before a meal.

Iodol possesses the advantage of being odorless, and is claimed to be as efficient as iodoform. My own experience with iodol has been disappointing, and induced me to prefer the iodoform, notwithstanding the odor. There are several potent objections to the use of morphine and cocaine, which are of sufficient importance to cause the physician to employ them only in those cases which in consequence of certain exigencies render their exhibition imperative.

In applying morphine for the purpose of allaying pain, one is compelled to use a quantum of the drug which, if it be absorbed, and there is always the likelihood of absorption, is sufficient to produce constitutional effects. One remote result is the disturbance to the functions of digestion; and every physician with any experience in the management of cases of consumption, recognizes the paramount importance of preserving the integrity of digestion, if the slightest hope for a favorable issue is entertained.

Then in relation to the use of cocaine hydrochlorate, reference has already been made to the necessity of caution, for manifest reasons. Cocaine, when applied to mucous surfaces, possesses one property which has not received the attention it merits. It invariably augments the secretions, salivary as well as mucous. This phenomenon is observed especially in the employment of the drug prior to all operations within the cavities of the nares.

In the dysphagia of laryngeal phthisis, patients may experience comparative comfort during the intervals between meals. Should anything transpire to necessitate the act of

* *Lond. Lancet*, January 7, 1888, p. 20.

swallowing during this interval, the pain is excessive. This is just the effect of cocaine. Patients, while they are assuredly grateful for the temporary relief afforded by the application, will speedily notice the augmentation of the secretions, their peculiar viscidty and albuminoid character, and the resultant increase in the necessity for constant swallowing. For this reason, and because of the indubitable sequelant irritation induced, I defer its use until it becomes absolutely imperative.

Another remedy which is being employed of late is resorcin. Its purposes are the same as are those of cocaine and other local anæsthetics. It is not so powerful or rapid in its action as cocaine, but is regarded by some authorities as somewhat more satisfactory; 10 per cent. and 20 per cent. solutions are recommended. My personal experience has led to rather negative results—a fact which may be due to a strong disinclination to employ agents which, if they do not interfere with the process of cure, certainly obscure the effects of other measures.

Iodoform, though an excellent antiseptic and bactericide, for some purposes,* is, according to Rovsing of Copenhagen, useless as a destructive agent when brought into contact with the tubercle bacilli. By experiments, he has, on many occasions, found that the growth of tubercle is in no way retarded by iodoform in considerable quantities. Still there can be no question, it appears to me, as to its efficiency in creating a healthy reaction in ulcerations, whether tubercular or otherwise, and there is one additional property which we are apt to lose sight of, and that is its potency as a local anæsthetic.

We have not the time on this occasion to discuss the question of tracheotomy as one of the methods of treatment in cases of tubercular disease of the larynx. There can be no doubt as to the wisdom of adopting such measures as will ensure rest to the diseased structures. In a few particulars, tracheotomy accomplishes this; but the pros and cons must be very carefully weighed before the

* *London Lancet*, January 21, 1888, p. 139.

adoption of so extreme a measure, especially when under the best of conditions its utility may readily be questioned. On the other hand, should stenosis ensue, and threaten the life of the patient, one might easily appreciate its feasibility. An interesting discussion of this question appears in the *London Lancet*, March 31, 1888, p. 618 *et seq.*, from the pen of Dr. Percy Kidd.

In menthol, which was employed in two of the cases cited, I am convinced we possess a drug of very positive efficiency. Dr. W. Leonard Braddon, in the March 17 and 24, 1888, issues of the *London Lancet*, deduces the subjoined conclusions from sundry experiments, instituted to ascertain its effects in the disease in question: (1) The oil may be inhaled pure for an almost unlimited time without producing any ill effects; (2) It has an immediate beneficial effect in some cases of even the latest stages of galloping phthisis; (3) That early phthisis is at least checked in its progress under its systematic use, and possibly when other circumstances are favorable is even cured.

While upon this subject, it may possibly be interesting to note the results obtained at the Berlin University Polyclinic from June 1, 1885, to February 1, 1888, and reported by Dr. Albert Rosenberg. An abstract of this report may be found in the *Philadelphia Medical News*, November 24, 1888, p. 592.

Of the fifty-seven cases enumerated, only about twenty are available, for reasons given. All of these twenty, however, improved under treatment. In nine, actual recovery took place; *i. e.*, the infiltrations disappeared, the ulcerations cicatrized, and existing subjective troubles vanished. In all the cases included in the table, the diagnosis was confirmed by the presence of bacilli tuberculosis. The most rapid in healing are the ulcerations, but of these the most obstinate are those on the posterior laryngeal wall. Infiltrations are more resistant, but even these diminish gradually. Commencing perichondritis in the arytenoid cartilages often disappeared entirely. The duration of the treatment is from four weeks to four months.

A comparative test of the action of menthol and of lactic acid was made in a case of tubercular ulceration of the velum palati, one-half of the velum being painted with menthol, the other with the acid. The menthol side healed more rapidly and was much less painful than when lactic acid was applied.

Much more could, of course, be advanced in relation to the different methods of treatment in cases of laryngeal phthisis recommended by as many different authorities—for their name is legion; but already have I overstepped the limits allowed me. One thing has, I think, been proved beyond peradventure, *i. e.*, the fearful scourge must, at the present day, be regarded with far more hopefulness as to its curability than in the past. No case, however severe, should be relegated to the unfortunate and discouraging class of incurables, without at least one earnest and conscientious effort being put forth to eventuate a satisfactory issue.

TWO OPHTHALMIC CASES.

BY E. J. BISSELL, M.D., ROCHESTER, N. Y.

In the July number of the JOURNAL, the ocular muscles were quite thoroughly exercised, and perhaps need a rest for a time, but I wish to present two cases of a different class of muscular troubles.

CASE I.—OPHTHALMOPLEGIA OF THE RIGHT RECTUS EXTERNUS.—Last March a young lady of dark complexion, nervous temperament, but with good general health and family history excellent, consulted me for a marked converging strabismus of the right eye, and gave me the following history : About one year ago she had a slight attack of rheumatism, accompanied with paresis of the right facial muscles ; but made a good recovery from both in a short time. Four weeks ago was again taken with general rheumatism and slight congestion and photophobia of right eye. By the fourth day the rheumatic pains had nearly ceased, but the right eye began to turn in and the mouth to be drawn to the left. On the eighth day the facial muscles had regained their power, but the deviation inward of the optic axis continued to increase. For a few days she complained of diplopia, twitching of lids, dizziness, and sleepiness, but no pain.

Previous to consulting me she had been under the care of a good homœopathic physician, who had relieved her of all rheumatic symptoms, but had failed to produce any improvement in the position of the eye. My examination in March revealed the following condition : Reaction of pupils, position of lids, appearance of fundi, and vision of both eyes normal ; but the right eye was converged four lines. There was no diplopia at this time, for it was impossible to bring the eye up to the median line, and the patient made no attempt to use the eye, even by turning

the head to the right. Phorometer tests showed the right external rectus to be the only muscle involved. On May 21 I discharged the patient cured.

I report this case, not because it is unusual, but for the positive therapeutic data which it furnishes regarding electricity. As the case had had good homœopathic treatment, I determined to try the efficacy of electricity, unaided by any internal remedies. I began the treatment by applying galvanism, two to five cells, the negative pole over the external rectus and the positive at the neck or on the forehead to excite the fifth nerve. This was continued every other day for two weeks, with no improvement. I then tried the faradic current, one electrode over the paralyzed muscle and the other at the neck, with the result of making the case worse after each treatment. I then returned to the galvanic current, but placed the positive pole over the rectus externus and the negative at the angle of the jaw. The same number of cells as formerly was used, and the current continued from three to six minutes. Improvement began immediately, and continued uninterruptedly, except when on occasional days I tried the faradic current to test its effect, and found that with each application the patient was made worse.

My explanation of the case is, that it being a *rheumatic* ophthalmoplegia, there was some inflammatory condition about the muscle or nerve sheath, and that the positive pole could be the only one indicated for such an inflammation. In referring to writers on this subject, I find a great lack of harmony, and, in fact, not very much positive information. Wells* advocates the method used in my first application, but continues the current for a very short time—a minute or less. Noyes† places no reliance upon the continuous current, but especially recommends the faradic, as in my second application. Mittendorf‡ greatly favors electricity, and places the positive over the paralyzed muscle, and con-

* "Wells on the Diseases of the Eye," page 690.

† "Diseases of the Eye," Noyes, page 102.

‡ "Diseases of the Eye and Ear," Mittendorf, page 63.

tinues the current ten to fifteen minutes. Edward Jackson * believes that electricity is not practicable, because of the danger to the retina and optic nerve.

I have used electricity in a large number of cases of heterophoria, paralysis, and exophthalmic goitre, with good results and without any injury to the eye.

CASE II.—PTOSIS.—Young lady, light complexion, well developed, consulted me last June regarding a marked ptosis of the right eyelid. This condition came on gradually, and had been permanent for nearly a year. The lid drooped so as to diminish the palpebral fissure more than one-half. Vision of both eyes was $\frac{2}{3}$, and in other respects the eyes were normal. Her general health had not been good, and she was suffering from chronic diarrhœa, for which she had been under constant treatment, both allopathically and homœopathically, with but little improvement. When I first saw her I elicited the following symptoms: Chronic diarrhœa, worse in the morning and after eating the slightest amount of food. Eructations, and pain about the umbilicus like a "thousand needles," with much flatulence. A number of times a day wind was discharged from the vagina with a loud report.

Upon these symptoms I prescribed Brom. 6x, a dose morning and evening, and told the patient to return in five days. She came as requested, and reported that her bowels were moving only once a day. There was also a perceptible improvement in the position of the lid. I gave her an oxygen treatment and continued the Brom., a dose every other day for a week, at which time she said that the diarrhœa and physometra were cured. After this she had a few oxygen treatments, and an occasional dose of Brom. Up to the present time she has had no return of the very annoying general symptoms, and the ptosis is entirely relieved.

In the pathogenesis of Bromium there are no symptoms that would lead one to prescribe it in ptosis, but in this case, as in many others in prescribing for the totality of the symptoms, we see the triumph of homœopathic therapeutics.

* "Handbook of Medical Sciences," vol. vi., page 660.

NASAL STENOSIS AND OBSTRUCTION AS A FACTOR IN AURAL AFFECTIONS.*

A PLEA FOR SYSTEMATIC EXAMINATION OF THE ANTERIOR AND POSTERIOR NASAL CAVITIES IN ALL AURAL AFFECTIONS ATTENDED BY DEFECTIVE HEARING.

BY D. A. STRICKLER, M.D., DULUTH, MINN.

It is not my purpose to consider in this paper the causes, nor the treatment, of nasal stenosis and obstruction, except in so far as may be necessary to make my position clear, but simply to call your attention to a few points showing the relationship existing between these conditions and aural affections.

Anatomically speaking, the Eustachian tube ends in the upper pharynx a little above the floor of the posterior nares; but, as has been pointed out by Edward Woakes: "In speaking of the tubes as terminating in the post-nasal space, this must be considered in a topographical or anatomical sense only. Because, as a matter of fact, the external or nasal meatus is the functional or physiological end of the tube."

The known functions of the tube are to conduct the secretions from the cavity of the tympanum, and to serve as a ventilator to the same. It is lined throughout with mucous membrane, continuous with that of the post-nasal space, and is subject to the same pathological conditions. Whether or not in the normal condition the tubes are constantly

* Read before the Minnesota State Homœopathic Institute, May 23, 1889.

open is a debated question. Some believe that a small chink remains open in the upper part of the tube, and that during every inspiration and expiration the air in the tympanum is changed, while others deny the existence of such chink; but whether present or not, the tubes do open with every act of swallowing. Hence, in the normal condition, ventilation of the tympanum takes place with every act of swallowing, the equilibrium of atmospheric pressure is maintained, the ear is kept drained of mucus, the conditions remain favorable for normal vibrations of the membrana tympani, and good hearing results. When for any reason the tubes become closed so that they no longer open on swallowing, ventilation of the tympanum ceases to take place, the air already in the tympanum becomes absorbed, and two conditions follow: First, the atmospheric pressure forces the membrana tympani inward. Second, owing to the absence of the usual atmospheric pressure within the tympanum, its lining membrane throws out mucus, filling, or partly filling, the tympanum. This mucus fails to escape through the tube, as in the normal condition, consequently a continually closed tube, by keeping up these conditions, will in time bring about changes in the mucous membrane lining the tympanum. The membrana tympani, lying close to or upon the promontory on the inner wall, becomes adherent to it either directly or through the interposition of bands; bands bind down the ossicles, etc., and defective hearing with all its inconveniences results. This condition is diagnosed catarrh of the middle ear (*otitis media catarrhalis*).

If the closure be due to violent inflammatory action in the pharynx or naso-pharynx, extending along the tube, as in some of the exanthemata, or from severe colds, the tympanum may participate, resulting in suppurative inflammation of the middle ear (*otitis media suppurativa*). That both forms of trouble, viz., the catarrhal and the suppurative, have their origin in the extension of inflammatory conditions of the pharynx and naso-pharynx is abundantly shown by all statistics bearing on the subject, which show that more than 90 per cent. of all ear diseases are caused by naso-pharyngeal affections.

Having dwelt thus long on naso-pharyngeal affections, commonly known as catarrhs, and the effect on the ear of the closure of the tubes, I will now attempt to show how nasal stenosis and obstruction act as a factor in the production and maintenance of aural affections.

Besides swallowing, as a means of opening the tubes, we have other means of accomplishing the same; one of which is known as Valsalva's experiment. It consists in attempting to forcibly blow air through the nostrils while they are closed with the fingers. By this, the air in the post-nasal space is condensed, and the tubes, if not too tightly closed, are forced open; the same thing takes place when the Politzer bag is used. But let us reverse the experiment, and see what takes place. While holding the nose so as to prevent the air passing through it, instead of blowing, swallow, which act is known as Toynbee's experiment. The tubes open, as when swallowing takes place with the nose open, but the air is drawn from the post-nasal space, a part of it is swallowed, forming a partial vacuum, and the air in the tympanum rushes through the tube to fill the vacuum. As soon as the act of swallowing is completed the tubes close again, only to open when the act of deglutition again takes place. If, the next time, the nose is open, the air rushes into the ear and the equilibrium of the air pressure is established; but if the nose remained closed, the air does not enter the tube, and consequently the equilibrium is not established.

Suppose this obstruction to be permanent, what must result? Not only does the air in the tympanum rush in to fill the vacuum, but the lessened pressure to the blood-vessels supplying the nasal and post-nasal spaces causes them to become congested; and congestion long continued means excessive action of the mucous glands, and finally pathological changes in the mucous membranes of the nasal and post-nasal cavities, including the tubes; and instead of the tubes opening with every effort to swallow, the swollen membranes no longer part, but a condition of more or less occlusion exists. The results of such occlusion have been given.

The longer the nasal occlusion exists, *cæteris paribus*, the more marked must be the pathological changes which take place in the nasal and post-nasal spaces. Every time the babe with snuffles takes its nurse it draws air from the tympanum and causes congestion of the nasal and post-nasal cavities; so, in advanced life, when obstruction to nasal breathing exists, every attempt to swallow (and how many times this takes place in twenty-four hours!) aggravates existing conditions. Add to this mouth-breathing, with its effect on the pharynx proper, and you have a case of aggravated catarrh, which of necessity endangers the integrity of the ears. Nasal and post-nasal catarrh well started continues to hold its own because of the influences already mentioned, to which is added the lack of proper drainage of the nasal and post-nasal spaces; and the discharges, not being perfectly drained off, continue in contact with the mucous membranes until they decompose, giving rise to further irritation, and to the unpleasant odor so common in catarrh.

Sajous, in speaking of deflected septa, says that nasopharyngeal catarrh is nearly always present as secondary to the deviation, and is due largely to imperfect anterior drainage.

The conditions which give rise to nasal stenosis and occlusion are various; among them may be mentioned hypertrophies of the turbinated and other nasal structures, turgescences, polypi, and other growths, deviation of the septum, etc. These obstructions to free nasal breathing are more apt to interfere when existing in the inferior meatus or channel of the nose, because, again quoting Woakes; "It is chiefly the inferior meatus or channel of the nose which contributes to the eustachian function. That is to say, the air which passes in respiration through this passage is mainly that which enters the eustachian tube. Hence the importance attached to the patency of the inferior meatus, and the attention given to diseases which interfere with its normal state. For if it be correct that the nasal meatus is the true functional or physiological end of the tube, the

tube is equally liable to obstruction from stenosis of the inferior nasal meatus, as it is from a similar condition occurring in any part of its length." The number of cases on record showing this influence is not as large as it would be were the conditions better appreciated by aurists in general. The subject grows with the aurist's knowledge of rhinology, and assumes a more prominent place in his practice. The articles by Woakes, Eaton, and Dayton are the only ones on the subject I have seen, but personal experience leads me to write the above, believing that, by directing special attention to the treatment of diseases of the nasal cavities, I have in many cases accomplished results which could not have been attained otherwise.

It is my custom when a patient presents himself for treatment for deafness, or partial deafness, to test the breathing capacity of each nostril separately by closing one with the thumb or finger and asking him to breathe through the other. I relieve nasal stenosis as a part of the treatment in both catarrhal and suppurative inflammations of the middle ear, believing that by this means results can be reached that would be impossible without it.

Some of you may recall a case reported by me in the *Minnesota Medical Monthly* of April, 1888, in which no progress was made until the nasal stenosis was relieved; after which the deafness, which had lasted more than a year, was rapidly relieved by the usual methods.

Since then I have had another typical case; that of a married lady, aged thirty-three, who had H.D.W. $\frac{6}{80}$, with nasal stenosis due to hypertrophy of the inferior turbinated structures of the corresponding nostril. The hardness of hearing had lasted for eighteen months, and was increasing. The stenosis was relieved by the galvano-cautery, and the ear treated by inflation with the Politzer bag. In six weeks the hearing reached $\frac{60}{80}$, at which it remained for six months, when she left the city.

A rather surprising result in the last case was, that the lady, who earlier suffered from severe headaches on the right side, attended by watery excoriating discharge from

right nostril and sensitiveness to light in the right eye, coming quite frequently, and frequently confining her to bed, was almost wholly relieved of them after the operation, having them only occasionally and then only lightly.

In vol. 16, page 290, of *Archives of Otology*, Wm. A. Dayton, of New York, publishes two cases bearing out this paper :

CASE I.—Nov. 13, 1885. John K. P., aged twenty. History of chronic suppuration of left tympanum after bathing ; of about ten years standing. Constant offensive discharge : uses syringe daily. Has had all sorts of applications made to his ears ; snuffed salt water and used gargles. Large circular perforation in anterior inferior quadrant ; hearing for watch after douching ear and inflation $\frac{5}{40}$. Patient a mouth breather ; left nostril almost occluded by deflection of septum and marked enlargement of end of turbinated bones.

The cartilage was straightened by crucial incision and plugs ; hypertrophied turbinated tissues removed by snare ; ear kept clean, and Eustachian tube kept open, with the result of stopping the discharge in six weeks.

CASE II.—Girl, aged eleven. History : Chronic suppuration of both middle ears since dentition. Numerous polypi removed from the ear ; mouth-breathing existed, due to vegetations in the vault of the pharynx and enlarged tonsils. Treatment consisted in removal of vegetations in vault of pharynx and from auditory canal, and reducing the tonsils. Progress was manifest from the start. In three months the membrana tympani cicatrized and the discharge ceased.

If I have succeeded in showing how nasal stenosis and obstruction produce and maintain post-nasal catarrh, and this in turn acts frequently as a cause of ear diseases, and it many times becomes necessary to not only examine, but also to treat, the nasal and post-nasal cavities, if one would be most successful in treating aural affections, my object in writing this paper is accomplished. The frequent necessity for treating the nasal and post-nasal spaces must be a strong reason for a systematic examination of the same in all affections attended by defective hearing.

ABSORPTION OF A SENILE LENS.

BY HAYES C. FRENCH, M.D., SAN FRANCISCO, CAL.

Dr. E. W. Crooks, of Santa Barbara, brought to me for special treatment, Mr. D—— S——, a farmer and septuagenarian, who had been the rounds of the opticians in vain search of artificial aid to his faulty vision. He was wearing at the time a plain spherical glass of 12 dioptries for the right, and one of 2.50 for the left eye. I found aphakia of the right eye, with a slight linear scar along the upper limbus, and a slight notch in the margin of the iris in its upper and outer quadrant—appearances which we might expect as a result of extraction without iridectomy, and was no less surprised than interested in the history of the case as given by the patient, and confirmed by the intelligent observation of his family physician. In 1885, at the age of seventy-two, Mr. S,—— while pulverizing oyster-shells in a mortar for his chickens, was struck in the right eye by a chip of shell no larger than a millet seed, which fastened itself in the anterior and superior margin of the iris, where it remained for about two and a half years. The lens became immediately cataractous, and the eye was intensely painful during the entire two and a half years preceding the removal of the foreign body, which was accomplished by an oculist of this city. He then sent him home to “await the ripening of the cataract,” preparatory to its removal. About a month after the removal of the foreign body, he one day discovered, by accident, that he could see out of the wounded eye, and watching the signs of returning vision, he had the satisfaction of finding, little by little, the entire field of the formerly cataractous eye fully restored ; and obtaining a + 11 D. lens, he was enabled with some difficulty to read with the injured eye. Returning to the city, he visited again the oculist who was to remove the lens

when duly ripened, and was greeted with the remark that he had "forgotten the operation of removal," and the doctor was naturally enough incredulous at the history of complete absorption of lens in a man of over seventy years.

It is another nail in the coffin of dogmatism, and another proof that the *vis medicatrix naturæ* is almost illimitable; and while this single example does not justify the experiment of wholesale discission of senile cataracts, it enjoins conservatism even in lenticular troubles and applies the brake of reason to the almost universally heroic method of dealing with cases of this class. The optometer revealed a refractive condition relieved by the following formula:

O. D. $+12 D^s$. $\ominus + .50 D^c$. axis 180° . V. $\frac{20}{30}$.

O. S. $+2.50 D^s$. $\ominus + 1.25 D^c$. axis 180° .

SCINTILLATING SCOTOMATA: A PERSONAL EXPERIENCE.

BY HAROLD WILSON, M.D., DETROIT, MICH.

The phenomena of scintillating scotomata have been noted by a number of observers (Wollaston, Listing, Alt, etc.), chiefly, perhaps, by those who have had personal experience with the trouble. It is, nevertheless, not common, and observations upon my own case may not be uninteresting.

For the past ten or fifteen years I have been subject to attacks of this trouble, coming on at irregular and infrequent intervals. They seem to arise from no cause I could ever assign, either remote or immediate, and appear never to be influenced by habits of life or occupation. Their frequency is variable, there being sometimes several attacks in a year, and then perhaps two or three years elapsing without one.

My vision is good, and equals 0.8 in the right and 1. in the left eye, with a slight hyperopic astigmatism in each eye. A small, fixed scotoma exists permanently in the right eye, a little below and outside the point of fixation, but has no relation, I think, to the difficulty under consideration. Ordinarily there are no ocular symptoms to be noted.

The attacks of scintillating scotoma begin with a sudden limited blindness, directly in the line of vision, and perhaps a degree in diameter. The consciousness that small objects in the line of sight are blotted out is the first intimation of an attack. In two or three minutes this blind spot has begun to move, and travels slowly upward and to the right. At the same time it changes in character, and from a simple area of blindness becomes a crescentic space gradually extending across the entire field of vision, from a point in its upper left-hand circumference

to a point on the right and below. This blind space differs from the initial spot, in that it scintillates most brilliantly. Extending through it is a bright, flashing, zigzag line, not unlike the continuous spark between the poles of an electrical machine. This line of scintillation is crescentic, its concavity looking downward and to the left; it moves gradually away from the line of vision upward and outward, and seems finally to travel right out of the visual field. The sensations it produces, as well as its exact appearance, are not easy to describe. It seems like a sort of trembling in the field of vision, with rapid local changes in the illumination. On attempting to read, a very large scotoma is observed to the right and above, occupying probably a fifth or more of the whole field. Its exact form and size I have never determined. The whole attack lasts about twenty or twenty-five minutes, and since it is terminated by the moving off of the scotoma, I am able to estimate the further duration of an attack at any time by the point the scintillations have reached in their travels. Following the attack there is invariably a dull headache, usually frontal, never one-sided, and lasting several hours; in fact, generally continuing the remainder of the day. I am otherwise not at all subject to headache, and never have been. At times I have tried various expedients to break up an attack, such as coffee, a cold bath, exercise, a cigar, etc., not to omit various internal remedies, but never with any success; the attack went through its usual course just the same.

Except during the initial stage, visual acuity is normal; color-vision is unaffected, and there is no pain, except the headache, which is never severe. The zigzag scintillations are equally visible, whether the eyes are closed or open, and I have never been able to determine whether the affection was in one eye or both, as it seemed to be identical in both visual fields. Some observers have noted the points of scintillation to be colored (yellow, blue, etc). In my own case, they have been uniformly white, no points of color anywhere appearing. During an attack, except from the decided inconvenience attending so great a disturbance of vision, there are no unpleasant symptoms but the beginning of the headache.

The only suggestion that my case offers toward explaining the cause of this affection is, that the central irritation originating it, may sometimes be confined to one optic tract, or at least to one side of the brain.

KALI MURIATICUM IN DISEASES OF THE EAR.*

BY E. H. LINNELL, M.D., NORWICH, CONN.

It is not my intention to discuss the peculiar therapeutic theories of Schuessler, or communicate any new applications thereof. I have not studied his therapeutics thoroughly, and I have not used his remedies extensively. I refer to those introduced by him, not to those already proven and previously used by homœopaths generally, such as Nat. mur., Calc. phos., and Sil. But since Dr. H. C. Houghton a few years ago recommended Kali mur., one of the so-called tissue remedies, in certain ear affections, I have used it to some extent in the class of cases for which he considered it applicable. I have not used it very frequently, preferring to rely generally upon our better known and proven remedies. Experience and the application of the homœopathic principles of "similia" are much more satisfactory than theory and empiricism, but every addition to our means of combating diseases of the middle ear, especially the so-called proliferous forms, is valuable, as I think all will admit there is still much to be desired in this direction.

The remedy mentioned is undoubtedly useful in a certain class of cases, but we lack definite indications for its employment. I have lately been looking over my clinical records to see what success has attended its employment at my hands. I have little or nothing that is new to communicate, and the object of this paper is more to elicit discussion, and to gain knowledge myself, than to impart any.

In Dr. Houghton's "Clinical Otology" we find Kali mur.

* Read before the Hom. Med. Soc., State of New York, Sept. 1889.

recommended for the following conditions: In otitis externa diffusa with the following indications: "Chronic dermatitis; moist, excessive exfoliation of the epithelial layer; in ulceration, pus whitish; granular condition of inner third of meatus and of membrana tympani." Secondly, in chronic suppurative inflammation of the middle ear, in which there are excessive granulations. In this connection he says: "I have had more satisfaction from its use than from any other single remedy. In repeatedly occurring granulations on the inner third of the canal about the edges of the perforations or on the tympanic wall, I always expect improvement under this remedy"; but he adds: "in conjunction with the local treatment which I have already laid down." In another place he says: "In chronic suppuration it reduces proliferation, checks granulation, hastens repair, and gives an increased power to withstand exposure." Also in chronic catarrhal inflammation of the middle ear, especially in the proliferous form, he speaks of its efficiency in strong terms, and gives the following indications: "A stuffy sensation in recent cases; subjective sounds and deafness are very marked. The objective signs are: Naso-pharyngeal obstruction, the effort to clear the fauces, granular pharyngitis, pharyngeal tonsil, closed Eustachian tube, retracted membrana tympani, and atrophied walls of the external meatus. Its action seems more decided on the right tube." Among the "cured symptoms" recorded at the end of the volume, I find "closure of the Eustachian tube in chronic suppurative inflammation of the middle ear." In a paper read before the American Institute in 1885, Dr. Houghton states that a pallor of the mucous membrane of the pharynx with a granular condition, is an indication for Kali mur., in contrast to the deep red appearance calling for Merc. He states that after a week's use of Kali mur. Politzer will often be successful in cases in which it failed previously.

Turning now to my clinical records for verification of these symptoms, I am somewhat disappointed. I append a few cases illustrative of the conditions for which he recommends it:

CASE I.—Katie D——; remains of recent suppurative otitis media of right side. Membrana tympani retracted with a depressed irregular and inflamed cicatrix in anterior portion, marking situation of former perforation. There were no special subjective sensations. I omitted to record H.d., for the patient was a child and it was difficult to estimate H.d. accurately. Kali mur. was prescribed and continued for sixteen days, and in addition warm glycerine was dropped into the ear three times a week, with the view of softening and relaxing the tissues. At the end of this time there was rather less inflammation, but the patient complained of some pain, and a small perforation was evident at the posterior periphery of the membrana tympani. Merc. sol. cured.

CASE II.—Mrs. B——. Had been suffering from an acute otitis media suppurativa of the left ear, which had improved under Merc. There remained a slight defect in lower anterior part of membrana tympani, but no discharge. In addition there was an affection of the inner ear, right side, remaining after a cerebral affection of the previous spring, the precise nature of which was uncertain. There was deficient bone conduction on this side, and constant tinnitus, "like a swarm of bees." Hearing of the right ear not much impaired, but not accurately tested. H.d. 1. (w) 4 ins. R. Sil. 30, four times daily, and cotton pellet to cover perforation of left drum. Two weeks later, the left membrana tympani was healed and looking dry and wrinkled. H.d. 7 ins. Tinnitus remained about the same. Replaced cotton pellet and prescribed Kali mur. 6x four times daily. Six days later, after removal of cotton pellet, H.d. was 12 ins., increased by Politzer to 22. Tinnitus much relieved. Continued Kali mur. Nine days later, membrana tympani white, no light spot, vibrating freely and not retracted. Manubrium mallei freely visible. Tinnitus only noticeable when lying down. H.d. 17 in., not improved by Politzer. Kali mur. was continued, with entire relief of tinnitus, but no further improvement in hearing or appearance of membrana tympani. Bone conduction, right side was not again tested.

CASE III.—Bessie G——, ten years old. Sub-acute catarrhal otitis media, with mucous accumulation in tympanum and protrusion of membrana tympani. Relieved by Politzer and Hepar, and hearing improved from $\frac{1}{4}$ in. to 49 ins., when condition was as follows: Membrana tympani somewhat opaque, and light spot small. Posterior upper portion atrophic and bulging from fre-

quent distension with catarrhal secretion. I would say that I had at first endeavored to perform paracentesis of the protruding portion, but was prevented by the nervous sensitiveness of the patient. Kali mur. 6x was prescribed. In three days H.d. rose to 54 ins., and the atrophic region was no longer prominent, showing arrest of secretion. Continued medicine. One week later atrophic portion seemed thicker and firmer, but H.d. declined to 49 ins. Continued medicine. Politzer omitted last two visits. Not seen again for two weeks, when membrane was again distended by accumulated secretions. H.d. 44 ins. Politzer removed secretions, and prominence of membrana tympani disappeared again, but there was no increase of hearing. Prescription was changed to Sil. 30. One week later the condition was the same, and now Politzer did not produce any result. Sil. was continued, and patient did not present again.

CASE IV.—Chronic catarrhal otitis media of long standing, left ear. Membrana tympani opaque, no light spot; malleus much retracted and foreshortened. H.d. 23 ins. Hypertrophic rhinitis. Impacted cerumen right ear, after removal of which h. d. each ear rose to 49 ins. Politzer unsuccessful; adhesions in tympanum; very little vibration with otoscope. R Kali mur. No improvement, but only short trial because patient became discouraged.

CASE V.—Chronic suppurative inflammation. Tissues indurated around central perforation. Kali mur. for nine days, with some diminution in swelling and induration, but more discharge.

CASE VI.—Otitis media suppurativa ex morbilli. Discharge stopped under Merc. Furunculosis of canal followed; much benefited by Calc. picrate, leaving both canal and membrana tympani indurated and red. R Kali mur. Improvement was prompt and continued for about a month, at the end of which time the canal and membrana tympani were somewhat indurated still, though much less than when commencing Kali mur., and some discharge remained from an almost invisible perforation. Now a small polypus developed at the edge of the perforation, which necessitated local treatment with caustics, and the inflammation extended to the mastoid. A perfect recovery ensued, with restoration of normal hearing, under Gels., followed by Puls. and Sil. 30.

CASE VII.—Old proliferous inflammation. Kali mur. of slight temporary benefit.

CASE VIII.—Chronic proliferous inflammation. Slight improvement, but much more satisfaction from Kali hyd.

CASE IX.—Effects of suppurative otitis media, both ears, following scarlatina. Perforations healed under Merc., Boroglyceride, and later boracic acid and cotton pellet. Right membrana tympani adherent to promontory; no light spot; vibrates slightly in spots by use of Siegle, not as a whole. H.d. c.—Left membrana tympani depressed, somewhat dull, small light spot, fair vibration. H.d. 43 ins.; after catheter, 40. R. Kali mur. Three weeks later, right membrana tympani not depressed, except a pit-like depression at umbo; at first only slight vibration, but increased by using otoscope, but no increase of hearing following. H.d. 1 in. L. h.d. 39 ins. Pol. 44 ins. Three weeks later, R. h.d. 1 in., L. h.d. 53 ins. Pol.—R. same; L. 60 ins.

CASE X.—Otitis media. Improved during five months treatment with Caust., Baryta, and faradism. H.d. (w.) increasing, right from 5 to 12 ins., left from 14 to 25 ins., with entire subsidence of tinnitus and proportionately greater improvement for voice. Kali mur. was administered for one week, during which time right ear lost 2 ins. of H.d., and left gained 2 ins. A further use of same remedy showed no improvement.

The above cases are too small a number from which to form a judgment of the remedy in question, but they are suggestive as indicating what class of cases are likely to be benefited by it, and what are not. In otitis externa, with granular condition of inner meatus, it has disappointed me, and in chronic suppurative conditions, with granulations and polypi in tympanic cavity, I have never derived the slightest benefit from its use.

In chronic proliferous cases it has, in my hands, been inferior to Kali hyd., the symptomatology of which it seems to greatly resemble. In these cases, also, it reminds me of Caust. and Sil.

The class of cases in which it has been most helpful, and to which it seems to me to be particularly applicable, are the sequelæ of sub-acute catarrhal and suppurative cases, in which the disease has been controlled by other remedies, and in which there remains depression of the membrana tym-

pani, with adhesions in tympanum and dried secretions limiting the movement of the ossicles ; perhaps also with more or less obstruction of the Eustachian tube. In an article read before the American Institute, 1885, Dr. Houghton strikes the keynote when he says : " It is called for in the exudative stage of acute diseases," and he further says : " In otitis media, I am satisfied that the results of acute inflammation " (catarrhal or suppurative?) " are less if we persist in its use until all symptoms indicating a lesion of the tympanum disappear." In these cases it has done me good service, though here again it reminds me of Kali hyd. If I were to draw a comparison, I should say that Kali hyd. was of more service in chronic, well-marked, proliferous forms, while Kali mur. was more helpful in the transitional cases. Two cases of tinnitus associated with the above-described conditions were very greatly benefited. Further experience will develop more clearly the sphere of action of this drug. Of course in the proliferous cases any remedy to be helpful must be perseveringly used for a considerable length of time. The remedy is deserving of more extended trial, and a thorough proving would probably develop valuable subjective symptoms. I shall hope to hear from others in regard to the applicability of this drug, and shall hope to gain a clearer insight into its action, and more specific indications for its prescription, from those who have had larger experience with it than myself.

In conclusion I wish to express my appreciation of Dr. Houghton's many and valuable contributions to the therapeutics of aural diseases, and my great confidence in his recommendations. It is quite likely that the explanation of my lack of success in the use of the remedy under discussion in some of the conditions for which he recommends it, is found in a lack of judgment in selecting appropriate cases.

By way of comparison I append a list of symptoms indicating Kali hyd., Caust., Sil., and Kali mur., so far as I understand them.

Kali hyd..—Old chronic catarrhal and proliferous cases

Hardness of hearing, with absence of subjective sensations ; singing in ears ; digging, tearing pains, not severe but annoying ; frequently recurring boring and tearing pains in middle ear ; sensation as though a leaf or something were stretched over the ear ; burning, scraping, and roughness in throat, as after taking cold ; viscid, salty expectoration and irritation of mucous membrane of mouth.

Caust.—Pressing out, tearing pain ; sudden stitches ; offensive and bloody discharge ; *roaring sound* ; *when speaking seems as if head were in a barrel* ; eructations are felt in the ears ; alternate humming and ringing in ears ; sounds of distant rushing water ; throat feels dry and rough ; scraped feeling behind uvula ; dull numb feeling in affected side of head, with sensation when speaking as if the voice came out through the ear ; occasional stitching, lancinating pains ; itching in ears and Eustachian tubes ; sensation from throat to ear ; tight or constricted sensation through affected side of head ; footsteps resound in affected side of head ; frequent roaring ; alternate singing and beating ; sound of water rushing over a dam ; crawling, as from an insect in ear.

Sil.—Sudden stopped feeling in the ears passing off after swallowing ; cracking in the ears when swallowing ; sounds in the ears like the ringing of bells ; the sounds seem to be in the head rather than in the ears ; sensitiveness to loud sounds, with difficulty of hearing the voice ; sticking and tearing pain.

Kali mur.—Lacking a systematic proving the indications are chiefly objective. Sub-acute catarrhal and proliferous inflammation of middle ear, with granular pharyngitis ; retracted membrana tympani ; adhesions and inspissated secretions in tympanum ; sequelæ of suppurative cases ; closure of Eustachian tube and stuffy sensation ; tinnitus, like a swarm of bees ; atrophied condition of meatus and pallor of mucous membrane of pharynx.

This paper was written one year ago, but I have nothing further to offer in regard to the sphere of action of the drug.

THE TEETH IN EYE DISEASE.

BY EMMA L. BOICE, M.D., TOLEDO, OHIO.

The importance of examining the teeth in aural disease and the weight to be attached to this factor in the production of such disease, have been the subjects of much discussion, but I have found comparatively little as to their connection with diseases of the eye, though my researches have been of necessity somewhat limited. I am, however, convinced that in a number of sick headaches, apparently due to overstrain of the eye, if we were to carefully examine the teeth, we would find the cause.

The following cases illustrate what I would say better than any argument, so I give them with no further explanation :

CASE I.—Mrs. P——, brunette, about twenty-nine years old ; nervous temperament. In 1886 she came to me with chronic purulent inflammation of the middle ear of eighteen years' standing, which was cured in four or five treatments. At this time she complained of headaches—left-sided—which she attributed to the eyes. I made no examination, as she did not wish it, fearing glasses would be prescribed. She was not seen again until January, 1889, when she called for an examination of the eyes, as her headaches were unendurable. In the meantime she had been treated by physicians of all schools, without relief ; each physician finally ascribing the trouble to the eye.

Examination under atropine revealed slight myopia (cannot give degree as I lost card in moving my office), and as she objected to wearing glasses, did not give them to her. On symptoms—principally of stomach—gave *Lycopodium*.

February 16, she returned no better. She could not eat for two or three days at a time, vomiting everything taken into the stomach, and was rapidly becoming an invalid. I had questioned her very carefully about her teeth before, but there was no soreness ; nothing that could be referred to the teeth. On this occasion I found one amalgam filling, which she had forgotten about; the other fillings being of gold. She was suffering from headache at this time. I advised the removal of the tooth, which was done. In about fifteen minutes she returned to my office with headache gone. The tooth was ulcerated at the root. Her face was enormously swollen for some days after, but up to date she has been free from headache. I gave her Lithium carb., and repeated the prescription one week later. Her trouble had lasted five or six years, and had always been worse after using the eyes, or any excitement.

CASE II.—Miss A——, age twenty-seven, blonde ; medical student at Ann Arbor. The symptoms of this case being very similar to the previous one, I will omit them. Miss A——, was under the care of one of the Ann Arbor professors for some weeks and was confined to her bed. She was then placed under Prof. Frothingham's care. He instilled atropine, which gave temporary benefit ; also gave her sphero-cylindrical lenses. Every attempt at study would send her to bed, and she was obliged to leave college. On coming to Toledo, she went to an oculist who gave her :

+ 1 D^s. \bigcirc + 1 D^c. axis 90° O.U. Distant vision.
+ 3 D^s. \bigcirc + 1 D^c. axis 90° O.U. Near vision.

also gave her treatment. I give this history to show that it really was an eye headache—to all appearances.

February 3, 1889, she came to me, saying she was desperate. (I knew she must be, to consult a homœopath.) I prescribed + .50 D^c. axis 90° O. U. for constant wear, and gave Sulph. 30x. February 16 she called again, having had another headache. To be brief, she had gold and amalgam fillings in her teeth. I had one tooth extracted, another treated. The dentist said the pus had almost found an opening into the mouth. Her headaches are no more, and she wears her glasses only to read with. Her teaching has been that a homœopath did not hunt for a cause—and her faith has received a severe blow.

In neither of these cases was there any pain in the teeth, and the ulceration was in the amalgam-filled tooth. The theory I hold is, that over-exertion, whether mental or physical, caused acid saliva. This generated an electric current between the amalgam and gold fillings, resulting in pain and disease. Why this does not prove to be the case in all persons, I cannot say; but Flint says: "Under certain abnormal conditions of the system, the saliva becomes acid." I take it that in all persons these conditions do not exist, consequently no disturbance is set up.

ETIOLOGY OF ATROPHIC CATARRH.

BY E. L. MANN, M.D., ST. PAUL.

The two principal forms in which chronic nasal catarrh presents itself to our notice and for our study are the hypertrophic and the atrophic; in the one the tissues, especially those overlying the turbinated bones, are increased in bulk, owing to an increase in the connective tissue elements; as a result we have the obstructed nostril, and consequent mouth breathing, leading to irritation of pharynx and larynx; the post-nasal dropping; Eustachian catarrh, and middle ear deafness, and a long train of symptoms the most varied and complex arising from pressure on the nerve terminals, and known as nasal reflexes.

In the other, the membrane is thin and atrophied, and the nostril spacious; the secretions are adhesive, forming large crusts, which, readily decomposing, cause offensive breath, deranged digestion, and general systemic involvement from surcharging the inhaled air with deleterious matter. The pharynx and larynx are dry and irritated, as the nasal chambers can no longer perform their proper physiological function of moistening and heating the air current.

The development of nasal surgery during late years introduced a rapid way of relieving the many distressing symptoms of the hypertrophic form; to have a patient enter your office with occluded nostrils, breathing with open mouth, unable to blow out the irritating secretions; with frontal headache, and oppressive feeling over the nasal bridge, and to send him away breathing freely through the nose; with headache relieved, and able to cleanse the nos-

trils, bordered so near on the miraculous in his eyes, and spread your reputation so rapidly, that it is not strange if, for a time, such means ran riot. Turbinated bones were twisted off, and snared off, and any unevenness in the rhinal surfaces was effectually planed down with saw, drill, or nasal plow. Before long, however, some of the operated cases returned, relieved it is true of their hypertrophy, but now suffering from an atrophic catarrh. A search was at once made for the cause of this untoward result; the pathology of the hypertrophic process was closely studied, and it was concluded that atrophy was the inevitable sequence of hypertrophy; that connective tissue, wherever developed, was subject to this secondary contraction. The study of the cirrhotic process in the liver and kidney showed this, and the history of atrophic rhinitis was but another example of the universal law; hence in hypertrophy it was bad practice to remove any tissue, as by so doing the inevitable and dreaded atrophy was merely hastened on, while by the persistent use of sprays and internal medication you could afford considerable present relief and ward off as long as possible the secondary atrophy which was very distressing and which yielded very little to treatment. A complete change was made in the treatment of hypertrophic catarrh—a turn from all surgery to no surgery; the pendulum swung to the other end.

If, in addition to the study of the pathology of hypertrophy, a closer investigation of the atrophic process and its etiological factors had been made, a somewhat different result would have followed, and a guide would have been found to the recognition of the proper cases for operation, and to the extent of the operative procedure.

That many cases of atrophic catarrh have passed through a previous hypertrophic stage is evident from their history, which shows a time when obstructed breathing and many of the symptoms of this process were present; that these gradually gave way, with or without treatment, as the atrophy developed, and that, where radical operative procedure had been instituted, this result was the sooner attained; but this accounts for only a small proportion of

the cases; many are atrophic from the start. In these, other causes are active; an underlying dyscrasia may have been the determining factor; lack of development of the turbinated bones, leaving an enlarged nostril; the inhalation of irritating particles incident to certain callings, as that of the carpenter and weaver; snuff-taking and other habits and conditions have their influence.

A careful study of these and of all the causes ascribed for atrophy, shows that they agree in one particular, and only one: the *retention of secretion*; either on account of its abnormal adhesiveness, as in the cases of snuff-takers, carpenters, etc., and in those subject to constitutional disorders, as scrofula, or on account of the inability to remove the normal secretion, as in the case of hypertrophy when the nasal breathing is interfered with; or in the almost opposite condition of too large nostrils, where the blast of air, though free, is not forcible enough.

The mucus drying and remaining in contact with the membrane leads to a maceration of the epithelium, and finally to its destruction; the ciliæ are lost; the mouths of the glands are blocked up, while the secretion, still going on and being dammed back, by pressure and chemical action induces atrophy and destruction of the glandular elements.

In proof of this, the microscopic examination of atrophic areas shows, not the dense fibrous masses of a contracting connective tissue formation, but rather an epithelial desquamation from the surface and gland lining, with destruction of glandular elements (Bosworth in *New York Medical Journal*, July 10, 1886); and this theory not only includes all the demonstrated causes of the process, but explains many heretofore perplexing cases. We often find an atrophic condition in one nostril, with an hypertrophy in the other; the inferior turbinated structures may have almost entirely disappeared, while the middle are still considerably hypertrophied; a pathological deviation of the septum leads to an atrophy on the side of the concavity; cases as difficult of explanation on the connective tissue theory as the fact that *all* cases of hypertrophy of any duration do not

develop atrophic changes. Such cases, however, are perfectly plain when we realize that it is not the hypertrophy in itself that is the causative factor, but that only when it becomes excessive enough to interfere with the proper cleansing of the nostrils, does it assume an etiological significance.

The importance of this in the management of hypertrophic catarrh, especially in the application of surgical relief, is evident; enough tissue must be removed to secure free exit to the secretions, and too much must not be taken away, or by greatly enlarging the nostril you decrease the force of the air current and prevent proper cleansing. Non-interference on the one hand, and excessive interference on the other, lead to similar results—retained secretions and consequent atrophy; while intelligent and discreet use of surgical means not only gives present relief, but ensures future immunity. Furthermore, our guide as to whether we shall operate on enchondroses and exostoses of the septum is not the fact that they exist, but that their presence interferes with proper cleansing, or by contact and pressure give rise to nasal reflexes. Enlarged middle turbinates, even when the inferior bodies are almost entirely atrophied, should be operated on if they press upon the septum or imprison the secretions; as such treatment is more conservative than a let-alone policy.

In atrophic catarrh as well, the first requisite in treatment is perfect cleanliness; the secretions should on no account be allowed to remain in contact with the membrane for any lengthened period. After cleansing, the use of some oily substance serves a good purpose in that it moistens, lubricates, and protects the membrane, and allows nature to exert her curative powers unhindered; glandular tissue that has already been destroyed cannot be reclaimed, but you can protect and stimulate whatever still remains.

In the treatment of all forms of nasal disease cleanliness is of the utmost importance, and the primary object of most local measures is to secure this desideratum; but do not for-

get that in the majority of cases a constitutional condition underlies the glandular and local disease ; and in all cases of any severity the general health has been undermined, and general remedial measures are imperatively demanded. Catarrh is not a disease in itself, it is but a symptom either of some local abnormality or some constitutional disorder.

A CASE OF PROGRESSIVE NUCLEAR OPTHALMOPLÉGIA.*

BY CHAS. C. BOYLE, M.D., O. ET A. CHIR., NEW YORK.

Mrs. —, age 35, came to me June 18, 1889, with the following history : Six months ago she was taken suddenly with a "spell," as she called it, which continued half an hour, during which she was unable to speak or open the mouth, though could move, see, and hear, and was perfectly conscious. This was followed by an attack of meningitis, which kept her in bed for two months ; she was delirious at times, and for one week was unconscious. She had always been troubled with headache, which was very severe during her illness, especially in the back part of the head. She reports that the mouth was drawn a great deal to one side at first, and that she could not swallow. Her memory has been poor since her sickness. Both upper lids drooped at first, but the left recovered its strength, while the right has remained about the same.

When I first saw her there was considerable headache in the occipital region. Her gait was unsteady, staggering at times, with an inclination to fall forward ; there was stiffness and pains in the knees, which would give way suddenly, so difficult to get up. The mouth was drawn slightly to the left side. There was partial ptosis of the right upper eyelid, accompanied by a paresis of the superior rectus of the same side ; it took a prism of 10° base downward before the left eye to bring the images on a line (left hyperphoria 10°). There was also a partial loss of power of both external recti (esophoria 20°), causing diplopia. The right internal rectus was also affected. The vision was normal, and no

* Read before the Homœopathic Medical Society of the State of New York, September, 1889.

abnormal appearances could be found in fundus. I suspected syphilis as the probable cause, but could get no positive history. She had left her husband after living with him only six months, on account of his living with another woman. I thought it very likely that he had contracted syphilis, and given it to his wife.

The symptoms of the disease indicated a lesion at the base of the brain at the pons, and very likely due to syphilis, in the form of a gumma. She was first put on *Gelsemium* for two weeks, during which time she grew gradually worse. Then I decided to put her on large doses of *Potass. iod.*, and at same time sent her to Dr. J. T. O'Connor for his opinion in regard to the brain trouble. He replied as follows: "I should say that there is a tumor in the region of the posterior part of the corpora quadrigemina, which is pressing on the nuclei of the third pair, and probably on those of the sixth pair, or it may be on the left sixth nerve fibres themselves. The headache is in favor of a tumor, but I am surprised that the discs are all right. I should not be surprised to find that the trouble is syphilitic, as there are grounds for suspecting this, and I agree with you that *Kali iod.* is the proper remedy."

July 11.—Patient has been on *Kali iod.* for ten days, taking as high as 200 grains a day, when it was stopped, as she was feeling the effect of it some. There has been very marked improvement. She complains very little of double vision; the ptosis is very slight, and the external recti and right internal rectus are much stronger (esophoria 3° O.S.; none O.D.); can overcome by external rectus, a prism of 5° and by internal, a prism of 24° . She has had the galvanic current applied to muscles daily. The headache has disappeared. I now put her on *Strychnine* $\frac{1}{60}$ gr., four times a day, under which her general health improved, but the eye muscles did not; they stood still, and finally commenced to grow worse. It was not until *Kali iod.* was commenced again that improvement showed itself. In a little while the right external rectus could overcome a prism of 7° , the left, one of 9° , and both internal recti, prisms of 34° . No hyperphoria was present, and the ptosis was hardly perceptible. Patient took as high as 280 grains of iodide of potash a day. At this time there was a week of very stormy weather, and the patient commenced to grow worse, the condition of the muscles becoming nearly as bad as at first. Whether the wet weather had anything to do with this change I

cannot say. I stopped Kali iod. and gave other remedies, without any result, and then put her back on the potash and sent her to the country for a couple of weeks.

It is difficult to tell what the final result will be, and I shall watch the case with a great deal of interest. I think the history and improvement that took place under Potass. iodide, indicates that the trouble was due to a syphilitic growth or gumma situated on the pons beneath the corpora quadrigemina. It involves that part of the pons in which is the nucleus of the sixth, and also above the nucleus of the sixth nerve.

Gowers says: "According as the disease does, or does not, involve the nucleus of the sixth nerve, the symptoms present some variation. If the disease is above the nucleus, there is a loss of the power of moving both eyes beyond the middle line toward the lesion. In most cases the other eye cannot be moved inward in convergence or alone, but in a few instances these movements have been preserved, although the inward movement associated with the outward movement of the other eye has been lost. If, however, the disease involves the nucleus of the sixth nerve, there is total palsy of the external rectus, so that the eye deviates inward and cannot be moved outward; the condition of the other eye is the same as in the first case. In this condition the facial nerve is usually paralyzed, as well as the sixth, its fibres being damaged as they curve round and through the sixth nucleus."

It seems to me that this will apply to the diseased condition existing in this patient. The disease not only affected the region of the nucleus of the sixth, but also that portion above it. In the first place, there was a loss of power to move the eyes very far toward the left side—the side of the lesion (conjugate palsy)—due to a palsy of the left external rectus and right internal. "If a lesion in the pons damages the fibres of the sixth nerve away from their nucleus, the paralysis of external rectus is complete, but exists alone; there is no deficiency in movement of the opposite internal rectus." The slight facial paralysis which my patient had at first on the left side, also indicates that

the location of the trouble is on the nucleus of the sixth nerve of the left side.

Gowers further says : " The lesion that causes these symptoms may be either a chronic process, such as a small tumor, or an acute lesion, hæmorrhage, or, more frequently, softening. The nerves may be the seat of isolated syphilitic inflammation or of a gumma ; they may be involved in syphilitic meningitis or compressed by a syphilitic growth outside of them."

This case can be classified as one of progressive nuclear ophthalmoplegia of syphilitic origin, beginning in a similar manner as the above. " Commencing with weakness of one or more of the ocular muscles, and often the muscles first affected are those that are associated in action, the superior rectus and levators, the two internal recti, or the internal rectus on one side and the external rectus on the other. Sometimes the order of affection is quite irregular. The loss of power, at first slight, slowly increases ; may have ptosis on one side only ; the internal muscles (ciliary) are often unaffected. When this is the case, the diagnosis of nuclear palsy can be made with confidence." The internal muscles of my patient's eyes were not affected, the accommodation being normal ; she had at first a slight spasmodic astigmatism (myopic) which disappeared. " The duration of the malady is long ; the symptoms may exist alone, but they are more frequently associated with indications of other disease of the nervous system—with optic nerve atrophy, with affection of the bulbar nerves, with progressive muscular atrophy, with general paralysis of the insane, and especially with locomotor ataxy." My patient shows some symptoms of locomotor ataxy,—as the pain in knees and almost entire loss of knee jerk.

The reeling, staggering, and tendency to fall forward are symptoms of cerebellar ataxia. These last symptoms are important aids in locating the seat of the disease. Nothnagel bases the diagnosis of a localized affection in the region of the corpora quadrigemina, upon the combination of cerebellar ataxia with paralysis of the eye muscles of both sides, unsymmetrical and of different intensities.

THE TREATMENT OF ENTROPION.

BY E. C. BROWN, M.D., PORTLAND, OREGON.

In a short article, as this is intended to be, it will not be expected that I should discuss the many operations which have been and which are continually being offered to the profession for the cure of this disease.

To those who are thoroughly satisfied with their mode of treatment I have nothing to offer. I do not expect to present anything new, but it does seem to me that some of the operations which are presented by our recognized authorities should be avoided; and for the benefit of those who have not decided upon any one plan of operating as better than any other, I may be excused for presenting one which has served me fairly well—yes, I may say very well. Not that I believe that there is any one mode of operating which is always the best; nevertheless I do believe that there is one method which is more generally applicable than any other. We can seldom pick up a quarterly review of ophthalmology without finding one or more new operations or modifications of old ones for the cure of this disease. This alone would lead us to think that the operations already presented to the profession were not entirely satisfactory. I am not one who believes in young physicians trying new methods until at least they can afford to, and only then when in their judgment the new, presents advantages over the old. No part of the face is more noticeable than the eye, therefore the importance of unnecessarily marring and scarring the coverings of this organ should always be considered. Some of the operations resorted to, do un-

questionably result in doing what we should all try to avoid, if we would be most successful and of the greatest benefit to our patients.

In the treatment of the acute or spasmodic form of entropion my experience has been quite limited. In the few cases coming under my care, I have removed a portion of the integument, together with a part of the orbicularis muscle. The amount of tissue removed varying with the degree of entropion. The wound is closed by two or three interrupted sutures. If the case had only existed a few days, the replacing of the lid and applying a few layers of collodion every two or three days might produce a cure, providing the cause could be removed; however, such have not come under my care. Since commencing this paper I have had one case of spasmodic entropion of the lower lid which had existed about a year. Some of you will say not very acute, if time has aught to do in making the disease chronic. The operation was performed as above described, and the result is all that could be wished; there being no tendency for the lid to turn either in or out. Care certainly needs to be exercised in this operation for fear of doing too much, the lachrymal puncta would then be interfered with, and epiphora be the result.

In the chronic form of entropion my experience has been much greater, and to my mind quite successful. In the past six months I have operated twelve times, and some of the cases have been of the very worst. In these cases I may say nearly one-half have been upon Chinese. The lower class of Chinamen seem to be quite subject to granular ophthalmia; therefore entropion also. To the Chinese I never give an anæsthetic, but to lady patients it is always best to do so, if not contraindicated.

In the first place, let me say, procure a good large entropion forceps. For some time I used Desmarre's entropion forceps, which proved to be very unsatisfactory for the larger and more important operations. A pair is needed which will as nearly as possible expose the entire outer surface of the lid. I am aware that not infrequently the mar-

gin nearest the outer canthus is most affected; in these cases a canthoplasty is often necessary. Dr. Knapp's entropion forceps answer the purpose very well, and are the kind I now use.

In performing the operation for the cure of a severe case of entropion of the upper lid, with in-curved tarsal plate produced by granular ophthalmia, after preparing the patient and applying the entropion forceps, I first make a horizontal incision the entire length of the lid (avoiding the punctum) about one and a half lines from the free margin, being careful to avoid the hair follicles; after which I make an oval incision through the integument, connecting it with either end of the first incision. This integument, which varies from two to three lines in its widest part, is now dissected from the muscle below and removed, after which from a line to a line and a half in width of the orbicularis muscle is dissected up and removed. I now thoroughly groove the cartilage, letting the apex of the groove correspond to the inner portion of this membrane, the outer portion of the groove varying from one to one and a half lines in width. Five or six interrupted sutures are now applied by taking a deep hold of the integument and muscle, and firmly tied with a surgeon's knot, the eye cleansed and bandaged, and the patient sent home.

The operation, it will be seen, is somewhat tedious and painful, but withal it is successful. I may say that I have tried several other operations, but by no means with equal success.

I have tried the Gailord sutures several times, using as many as five strong sutures in one lid, and must say that they have not proved satisfactory to me. The pain and swelling are much greater than in the operation described, and the result is not so good, besides leaving permanent scars. I should also counsel against any operation which has for its object the extirpation of the lashes, as shown on page 831 of Wells on the Eye, and for the following reasons: It permanently disfigures the eyelid; and, from my experience, I do not see how it can be permanently successful.

The cause of the incurvation having been in no sense removed, rather increased, for at either end when the sutures are applied some contraction must follow, and result in the lashes again rubbing against the eyeball. I speak of these, because a person with limited experience consults his books, and when he sees operations well recommended, how is he to choose which is the best? In the operation described, I remove from a line to a line and a half in width of the orbicularis muscle, my object being to permanently weaken this muscle.

In a disease like granular ophthalmia, when in the very nature of things there has been more or less photophobia and muscular spasm for months, and perhaps years, we would expect to find the fibers of the orbicularis increased both in number and in size, which in many cases is doubtless true. Therefore the reason for weakening this muscle is apparent.

While there are many other methods of operating for the cure of this disease, I am convinced that the one above described is as simple and as easily carried out as any that will give equally good results in the great majority of cases.

A CASE OF LARYNGEAL TUMOR CURED APPARENTLY BY INTERNAL MEDICATION.

BY MALCOLM LEAL, M.D., NEW YORK.

I am aware that, in reporting this case and the others appended as cures resulting from the internal administration of remedies, I am courting the criticism that such growths—papillomata—are uncertain in their course, and not infrequently disappear without recognized therapeutic intervention. This fact I recognize, and report the cases for what they are worth, merely remarking that the histories show that the neoplasms were not coughed up, but disappeared gradually. And even those who may believe that the administration of the drugs and the disappearance of the tumors were mere coincidences, will acknowledge that the results are evidence that watching and waiting is preferable to early operation with its risk of changing a benign into a malignant neoplasm.

CASE I.—Mr. F——, a traveling salesman, was referred to me July 10, 1883, by Dr. B. G. Carleton. He complained of hoarseness, which came on gradually two months before, and which had been unrelieved by remedies. He had no pain, cough, nor expectoration. The hoarseness was slightly more marked in latter part of day; in degree it was marked and coarse, but not sufficient to render speech unintelligible. His tongue was furred at base. The mucous follicles of posterior wall of pharynx were prominent, and both pharynx and larynx were hyperæmic, and so irritable as to render examination of the larynx impossible. He was told to educate throat by manipulation, and was given a tanno-glycerine spray.

On the third day, toleration was such that a laryngeal examination was made and then was seen an apparently soft, sessile growth, gray in color, projecting from the posterior two-thirds of the anterior half of the right vocal cord (Fig. 1). The color of the mucosa of the cords was nearly normal, and the growth had the appearance of inspissated mucus attached to lower surface of cord. An examination made the following day more clearly revealed the condition. The growth seemed more prominent, was rather nodular, and projected from the under-surface of the cord. The patient was told to use the tanno-glycerine spray night and morning, and was given Causticum θ , to be taken five times a day.

On July 14, the patient, having gone to the mountains for a few weeks' vacation, he was told to keep up the same treatment, but to weaken the spray by dilution with water.

On August 3, the growth was darker in color and slightly in-



Fig. 1.

creased in size. Lugol's solution was applied to larynx. Nux vomica 2x, 3 p. d., was given for one week.

August 10, my case record reads: "No increase since the 3d; color darker. Thuja 1, 3 p. d., with Nux, night and morning."

August 22.—"Color of growth lighter; no increase in size. Hoarseness more marked. Tongue clearing, and general health better. Same treatment."

September 6.—"Growth light gray in color. No medicine.

September 8.—"Return to Thuja and Nux."

September 10.—"Same condition. Caust. θ , and Nux 1, either or both, according to subjective results."

September 11.—"Writes: 'Wet weather prevents my reaching the upper notes [in singing] with ease.'"

October 27.—"Hoarseness more marked, though not enough to interfere with business. Growth increased in size." (Fig. 2). Causticum θ was given 3 p. d. "By education, throat has become

so tolerant that forceps were passed into larynx, and growth touched, without causing gagging or coughing."

November 3.—"Slight increase." Caust. 1x.

November 18.—"Some increase." "Has caught cold and has pain in chest, etc. Kali phos. 6x, two hours."

November 20.—"Pain in chest gone, and patient feels well in every respect except for hoarseness. Growth reddened and projecting more. Thuja 1, 3 p. d."

November 22.—"Return of pain, but not more than noticeable. Voice varies, at times being clear. Thuja 1, night and morning. Caust. 1 x, 3 p. d."

November 25.—"Perceptible increase in size of growth. Pain in chest after manipulation. Arnica 3, two hours."

November 28.—Growth not materially increased since last examination. No irritability. Application of forceps to growth



Fig. 2.

and to under surface of epiglottis produced only slight coughing. Arnica continued.

December 1.—"No change. Same medicine."

From December 6 to 16 Arnica θ was given. From then to January 13, 1884, Arnica 30 was prescribed; and from then the third dilution of Arnica was used.

On March 25 the record reads: "Voice has been better. Has had no chest pains while away. Now has sore throat—ulcerative tonsillitis. Growth has not increased in size, and vocal cords have accommodated themselves to it." Merc. bin. 1 was given. After the tonsillitis disappeared, no medicine was given until April 16, when record reads: "Very slight increase in hoarseness. Has had a cold in nose and throat. Raises 'bloody, clotty, yellow stuff.' Growth, if anything, smaller. Pharynx and nose congested, and mucosa denuded of epithelium. Is using voice a great deal. Merc. prot. 1, 4 t. d." From then had Bell. 1 and

Merc. prot. 1 at different times, for various symptoms, not connected with larynx, until June 19, when was examined. "Has just returned from a trip. General health is better. No hoarseness to speak of. Growth smaller."

November 1.—Has had no hoarseness, except at times, and has taken no medicine. "Growth white and somewhat more prominent than when last seen. Caust. 1, two hours."

November 6.—"Tickling in throat, producing hacking cough, which prevented sleep last night. Sulphur 200, 2 hours."

August 28, 1885.—"Voice better, no medicine." Growth only noticed as slight prominence over original site.

January 14, 1886.—"No appearance of growth."

This case was seen, in consultation, by several other specialists who advised immediate operation; one saying I ought to be criminally liable for not operating.

I have also on record a second case; a small nodular growth on margin of vocal cord, which growth caused hoarseness. This case was that of a young girl whose name is forgotten; consequently I cannot turn to her record. She received Causticum, and later Arnica, and was heard from over a year after the disappearance of the growth and restoration of voice, at which time there had been no recurrence.

A third case—a small angioma—is now under treatment, and when last seen was improving both as to hoarseness and size of tumor. Causticum was the remedy prescribed.

A COLLECTION OF PERSONAL EXPERIENCES IN CATARACT EXTRACTION.

BY CHARLES DEADY, M.D.

In considering the various means of making the Journal useful to the profession, it has occurred to the writer that valuable information might be afforded by a comparison of the methods and manipulations in use among our best operators for the removal of cataract. The different steps in the operation have been the subject of much discussion among writers, and modifications have been suggested from time to time, as dictated by experience, until at present the young operator is confronted by so many possibilities that he is at a loss which to choose.

Many of our surgeons, from personal practice, have been led to adopt a certain course of procedure which has seemed best adapted to their needs, and it was thought that if the various opinions on the subject could be presented in one article, a better idea might be obtained of the conditions essential to a successful result.

For this purpose the following list of questions was prepared, a copy of which was forwarded to the various oculists throughout the country, and below are appended the responses which have been received up to date, arranged in alphabetical order:

SENILE CATARACT.

Please state the results of your experience on the following points—always give your reasons if possible :

1. Most favorable and unfavorable seasons for operating.

2. Influence of age, habits, general and local conditions on success.
3. Comparative success in operating (*a*) unripe cataracts, (*b*) artificially ripened cataracts, (*c*) ripe and (*d*) over-ripe cataracts.
4. Comparative results in operating (*a*) without iridectomy, (*b*) preliminary iridectomy, (*c*) iridectomy at time of cataract operation.
5. Value of antiseptic measures ; *what* to use and how to use it.
6. Best method of anæsthesia, if any ; objections to other methods.
7. Operation : daylight, gaslight, or electric light ; form of operation commonly used and why ; objections to other forms.
8. Do you control lids by speculum, retractors, or fingers of assistant, and why ?
9. How do you steady eyeball when making incision, and why ?
10. How do you rupture capsule, and what manipulation do you use in delivering lens, and why ? State objections to other methods.
11. In what percentage of cases do you lose vitreous, and how does it affect result ?
12. What is your practice respecting cortical substance left behind, and general attention to wound before bandaging ?
13. Form of bandage : its advantages and your objections to other forms. Do you put your patient to bed, and what liberty of motion do you allow ? Dark or light room. Any local application used immediately after operation.
14. State commonest causes of failure in your experience, and how you combat them.
15. State most successful treatment, both local and internal, for sloughing of wound, capsulitis, iritis, irido-cyclitis, and panophthalmitis.
16. Percentage of cases in which you make secondary dissection.

H. C. ANGELL, M.D., BOSTON.

I know no difference in seasons.

Good habits, good digestion, and the absence of ophthalmic inflammation are favorable to success.

I do not operate on unripe cataracts, and I have had no

experience with artificial ripening. The ripe cataract is by far the safest for operations. My personal experience with the over-ripe variety is not extensive enough to be of value.

Neither the performance or omission of iridectomy, or the time of such performance, has of itself any decided influence on the result.

I consider antiseptic measures indispensable. The Graefe knife is sent to be put in order by the instrument maker, and returned free from spots and roughness, and just before making the incision is dipped in strong alcohol. The other instruments are placed for a short time in 1 to 2000 bichloride solution. The lids are washed before operating in soap and water and then with the bichloride 1 to 5000.

Local anæsthesia with 4 per cent. solution of cocaine is best. General anæsthesia is unnecessary.

I operate by daylight. I prefer the small flap upward, as in case of a scar at the edge of cornea, vision is less disturbed. Cocaine and the speculum render all the manipulations upward comparatively easy, and no assistance is absolutely required.

The lids are controlled by the speculum, because it is a machine, always reliable and always at hand.

The ball is steadied by forceps, either above or below the edge of cornea; but very little steadying is required under cocaine.

I make a V-shaped incision in capsule, because I always have done so. I wait patiently for the delivery of lens, making the wound gape by gentle pressure above it, and sometimes press gently with my finger or instrument over the lower edge of the cornea. I prefer enlarging the wound with blunt scissors to make the exit of the lens easy, rather than enter the eye with the spoon for its extraction. I like to avoid all bruising of the tissues and all rupture or escape of vitreous.

Slight loss of vitreous with the escape of the lens is noticeable in perhaps 20 per cent. of operations, and does not seem to affect results materially.

Unless considerable cortical matter remains behind I do

nothing. If considerable, I remove it with spatula. The lids are washed with bichloride solution, and a bit of mercurialized absorbent cotton placed over the eye and held in its place by a loose bandage.

I prefer the simplest form of bandage, so that it can be easily replaced by the nurse, and conveniently removed to admit of bathing in warm water, and for the inspection of the outside of the eye. Patient is put to bed, room not darkened, and almost complete liberty of motion permitted.

Insufficient size of wound, necessitating manipulations, entrance of eye with instruments, spoon extraction, and bruising, are the commonest causes of failure in my experience.

Treatment for sloughing, asepsis, quiet, hot water, good feeding, Calcium sulphide internally. For irritations and inflammations of uveal tract, quiet, and the use of atropine and duboisin.

Secondary discission is made in perhaps 10 or 15 per cent. of the cases.

W. N. BELL, M.D., OGDENSBURGH, N. Y.

In this climate (Northern New York), all seasons are favorable for cataract operations, and my operations have been performed in almost every month.

I avoid inclement weather, and select bright, clear days if possible, although I have operated with utmost success when the thermometer registered twenty degrees below zero, and as late as three in the afternoon.

Age, *per se*, in my opinion, is of secondary importance; the habits and general condition of the patient being primary. An anæmic condition of the body does not militate against good results, but a florid, plethoric habit increases the risk of severe reaction. Habitual drinkers make hazardous cases, while a scrofulous or rheumatic diathesis is liable to render the healing process difficult and the result doubtful.

My experience has been confined to ripe or over-ripe cataracts. The difficulty met with in the latter has been

a tendency of the nucleus to become depressed laterally beneath the edge of the iris, after the escape of the soft cortical substance, thereby making the use of the scoop necessary in its extraction.

It has been my invariable custom to make the iridectomy at the time of the cataract operation ; chiefly as a matter of necessity or policy. It is with reluctance patients consent to submit to two separate operations, and as the results have all been good, I prefer the combined operation.

In my opinion cleanliness is the great and essential anti-septic measure to be observed ; and in my experience, no agent answers the purpose better than a solution of boracic acid, grs. v. to the ounce. With this, after dropping in a little cocaine, the eye should be thoroughly washed externally and within the conjunctival sac ; great care being used in removing every trace of catarrhal secretion from beneath the lids. After the operation the eye should be covered with a layer of absorbent cotton soaked in the same solution.

Cocaine has supplanted all other anæsthetics, and since its introduction hæmorrhage has been unknown in my experience. By its use are obviated all the unpleasant constitutional effects of ether and chloroform, the intense congestion of the ocular tissues, and the necessity of having more than one assistant. As yet, I have seen no objection to its use.

Good daylight is the only method of illumination I am familiar with ; and it is of vital importance that it be brilliant and unobstructed without exposure to direct sunlight ; especially is this important in making puncture and counter-puncture. Thus far I have relied upon Græfe's method of operating, as modified by De Wecker. I believe there is a tendency to approach the ciliary region too closely, and the line of incision should be in the cornea rather than in the sclero-corneal border.

Mittendorf's speculum has proved very serviceable with me, and I invariably use it or Liebold's. I consider the control of the eye, especially in making puncture and counter-puncture, important, therefore I always use fixation

forceps to steady the eyeball. The pressure upon the globe is far less when using the forceps, than when the finger is used, and certainly the control exerted is greater.

I invariably perform the peripheric cystotomy, and am very careful that the division of the capsule be thorough and free; if insufficient it will certainly increase difficulty of removal and militate against good primary vision.

The manipulation in delivery of lens should be begun by depressing with vulcanite spoon the scleral border of wound, until the upper edge of lens tips into the line of exit. The forceps are meanwhile carefully pressed against the sclera below the cornea, with just enough force to facilitate the passage of the lens. When the lens has engaged in the incision it is sometimes necessary and advisable to gently stroke the cornea with the spoon. The incision being large enough, and cystotomy sufficiently free, there is never any trouble in uncomplicated cases.

In only one case, so far, have I lost vitreous, due to its being fluid and an unripe lens. The nucleus resisted all efforts to extract, until finally the manipulations produced a moderate loss of vitreous; the scoop was immediately and successfully used, and an uninterrupted recovery ensued, with primary vision of $\frac{15}{100}$.

The cortical substance should be entirely removed if possible, and I generally spend considerable time in its removal. The closest attention should be paid to the edges of the wound. Small particles of the iris or cortical substance must be wiped away, and the little flap of conjunctiva examined lest it may have become folded back between the lips of the incision.

Am decidedly conservative in regard to after-treatment of my cases, and assert that there is no arbitrary rule to be followed. We must use discrimination in our cases. The bandage should be the lightest possible, and in my opinion Liebreich's answers the purpose well. A layer of absorbent cotton soaked in the boracic acid solution is applied over the closed eye, and upon this picked lint carefully laid to equalize the pressure, and the bandage put on sufficiently tight

to be comfortable. My patients are kept in bed from three to five days, according to temperament, reaction, etc., in moderately darkened room. The eye is left undisturbed, unless complaints are made by patient, for twenty-four to thirty-six hours, when bandage is reapplied. Begin to use atropine generally the third day.

Iritis is the most frequent cause of trouble. Application of hot water, and atropine pushed until dilatation of pupil is accomplished.

About 15 per cent. of my cases, so far, require secondary discission.

JAMES A. CAMPBELL, M.D., ST. LOUIS, MO.

Prefer spring and autumn ; spring best, especially for old people—vital forces strongest.

While theoretically "age, habits, general and local conditions" have much influence in reference to the success of cataract operation, my actual experience has been filled with so many bewildering and unlooked-for contradictions that I hesitate to formulate fixed views. I have operated on cases in which every condition favorable to success seemed present, and yet the results were disappointing. On the other hand, some of the most conspicuous successes have been in cases which seemed very unfavorable. On general principles, I would say that the condition of the general vital forces and functions of the patient were of more importance than the age. I dread to operate on a diabetic patient of any form.

In reference to local conditions I recall a number of cases with chronic catarrhal ophthalmia, the presence of which did not seem to interfere in the least with most excellent results. I would not give preference to such cases for operation, however.

I never operate on unripe senile cataract if it can be avoided. I do not ripen cataract artificially unless some emergency demands it. Ripe cataract is the ideal for operation. I always anticipate trouble from over-ripe cataract.

Have operated on but few cases without iridectomy. The very favorable statistics of Knapp, Galezowski, and

others are remarkable, but to me they are more the evidences of the cultivated expertness of these very experienced operators, than proof that the operation performed should be generally adopted in preference to the one in vogue, with iridectomy. When a man has operated on 1000 cases of cataract, he certainly ought to have attained a familiarity with conditions, a mastery of detail, a combination of mature judgment and quick-acting decision, by which unlooked for complications and threatened disaster, which frequently arise, may be converted into success. And this, in my opinion, forms a combination of equipment far more valuable and important than any particular method or theory.

It will be observed, too, that Knapp's second series of 100 cases of cataract without iridectomy shows a decided improvement over the first series; and that to obtain the final most exceptional results, subsequent discission of capsule was made in 74 per cent. of the cases operated upon—both of these facts being significant.

Would make preliminary iridectomy in many, if not most, cases, if allowed, but find few patients willing to undergo two operations on the one eye, especially if from a distance, as many of my cataracts are. I find too that the custom of the vicinity has some influence on the patient's willingness to submit to the preliminary operation. It is not usual in this city; in fact, it is very exceptionally performed. I usually make iridectomy at time of operation.

Always thoroughly cleanse the surrounding parts, and sponge with solution bichloride of mercury, 1 to 2000. Use only boric acid, 2 per cent. solution, in the eye; use it freely and frequently.

Since cocaine offered, use no other anæsthetic. Have not observed many of the objections which have been proposed against it.

Nothing can equal good daylight, northern exposure. Would use artificial light only in emergency, or when daylight defective. Have for sixteen years used the peripheral linear incision, modifying it to suit the circumstances of the case. Prefer to complete the cut more in the cornea than

formerly. Other forms of operation may be better for those who are familiar with them, but extensive opportunity for observation among the best operators of different lands, and a familiarity with the statistics on the subject, convinces me that every one is more successful with the methods he has learned and perfected by repeated experience than with any other man's way. It is not so much the cut as the cutter; not the peculiar form of knife, but the hand that uses it, which makes the operation successful or otherwise.

I use speculum. Have seen a few reliable assistants, upon whom the operator could always depend, but they are very rare. I have no one of this kind at my command.

The eyeball is steadied with fixation forceps attached to conjunctiva below lower margin of cornea. Under general anæsthesia the eye frequently has a strong tendency to roll upward at the wrong moment. Under local anæsthesia the patient will sometimes move the eye in various directions, which is always an embarrassing, if not actually a dangerous thing during the incision; therefore I fix the ball, using great care and gentleness, however, always avoiding any direct pressure on the eyeball itself.

Generally rupture capsule with cystotome. Recently have been using the "peripheral" method.

To deliver lens I use gently managed pressure and counter-pressure on lower corneal segment and above the incision with hard rubber curette. Do so because I learned it this way, and thus am more familiar with this means. Each man should use the method he is most practiced in, if it is without objections. Every one who has seen Bader discard instruments and deliver the lens with the most delicate manipulations of his finger-tips, must admire his speed, grace, and success. I presume he used the method with which he was most familiar. For the same reason, I continue the way I learned, improved upon by frequent repetition.

I seldom lose vitreous. Have never lost a sufficient quantity to interfere materially with the operation; at least, could never attribute bad results to such a cause in my own experience.

I make it a rule to remove all cortical substance possible, by the usual manipulations over the lower lid against the cornea.

After operation is completed, wash out conjunctival sac with boric acid solution. Am particular to see that no cortical substance, vitreous or iris remains in line of incision; and adjust the cut edges as carefully as possible.

Do not bandage as much as formerly. Generally use a light square bandage covering both eyes, closing the unoperated eye with plaster and carefully filling out depression between nose and corner of eye with a small quantity of borated cotton, a thin layer of which covers the eye operated on. I cannot as yet discard the bandage altogether in all cases, as has been recommended. The only statistics of any series of cases so treated, with which I am familiar (Chisholm's), do not seem to encourage its general adoption. The unrestrained liberty given to patients is very apt to run into a harmful and ruinous license. I have for several years removed the light bandage much sooner than formerly, and closed the lids with plaster. Within the past two years I have been experimenting with the no-bandage method, and as far as I have gone am very pleased with the results, but the fact that I have always selected very suitable cases for it, with the additional fact that my list so treated is comparatively small, makes any statistics which I might offer in this direction of very little convincing value. I modify the light, but have it neither dark nor light.

Iritis is commonest cause of failure. Atropia sulph. always. Indicated internal remedy. Quiet of body and mind.

I can not speak of most successful treatment for various inflammations, as I seldom treat two cases alike; rely more on internal remedies than local. Do not believe in cold applications. They are wrong in theory and often harmful in application. To be of any use they must be applied continuously and most carefully; outside of hospitals it is frequently impossible to have this done, and the result is

more harm than good. Prefer dry warm applications; they are usually very agreeable to the patient, and improve rather than retard the vital processes.

Do not make secondary discissions as frequently as I would like to if permitted. Often feel that I could improve a very fair result by a secondary operation, but find patients generally very satisfied with a little when they have had nothing; report of percentage operated on would therefore be misleading.

W. P. FOWLER, ROCHESTER, N. Y.

In regard to the most favorable season for operating, fall, winter, and spring months are, I think, preferable to the sultry weather of summer, when the tissues are relaxed and the healing process tardy. In my opinion, the most favorable season of all is midwinter, when the temperature is almost continuously below 32° Fahr., and the atmosphere dry and bracing. In autumn and spring, when the weather is damp and changeable, an attack of acute coryza is liable to have an unfavorable effect after operating.

Age has its influence. In those past seventy, results are not as uniformly good as in the younger. Intemperance is a frequent cause of lack of success in cataract extraction. The chronic catarrhal conjunctivitis of the drunkard is always, when present, a serious complication. When, besides being intemperate, the patient, as is often the case, has been improperly clothed and fed, results are not as satisfactory.

My success in operating on unripe cataracts has been, as a rule, good. I have never lost an eye from the effects of unexpelled cortical substance. Secondary discission, though, has been necessary in 25 per cent. of these cases. Have had but little experience in extracting artificially ripened cataracts. *In every case* of ripe and over-ripe cataract my success has been good.

The most perfect results have been obtained by operating without iridectomy. With preliminary iridectomy I have had only slight experience. Have sometimes proposed it,

but the patient has invariably objected to *two* operations when one would answer. I have many times made iridectomy at the time of cataract operation, and have yet to experience any bad results from it.

Aseptic precautions are now taken in all my operations. Boric acid, grs. iv. to the ounce is all that I use. The conjunctival sac is flooded with the solution before operating, and a drop or two put into the eye each time when removing the bandage. I also use the solution to bathe the eyelids when dressing the eye.

Cocaine I consider by far the best anæsthetic. When using it, the patient can materially assist the operator by moving the eye in the desired direction, and the ill effects—nausea, vomiting, headache, etc.—of ether and chloroform are avoided. Have always operated by daylight, and usually make either the Liebreich or DeWecker incision. There is greater danger of loss of vitreous when Von Graefe's operation is performed.

I control the lids by the speculum—Liebold's—and steady the eyeball with fixation forceps. The capsule is ruptured by the cystotome, through the centre of the pupil, in the shape of the + sign. My experience is that when the capsule is ruptured at the periphery, a second operation is more often necessary.

The lens is expelled in the usual way, by gently pressing upon the posterior lip of the wound with a curette, and at the same time making careful counter-pressure. If the incision is sufficiently large, very little manipulation is required. When cortical substance remains, the lids are usually closed, and rubbed around in a direction calculated to expel it. Occasionally the posterior lip of the wound is depressed, so as to allow the cortical substance to escape.

In not more than 2 per cent. of my cases has there been a loss of vitreous. All of them were successful, vision being good. One case I thought lost, but much to my surprise a rapid recovery was made, and $V. = \frac{2}{70}$.

Before bandaging I am careful to remove all clots, particles of lens, and any other foreign substances that may be

in the conjunctival sac. I then drop in a little boric acid solution, and apply a Liebreich knit bandage, the eye being first carefully padded. This bandage is more elastic than the flannel roller, is more readily applied, and easily removed. It keeps its place perfectly, which cannot always be said of the roller. It is also less cumbersome than other bandages.

The patient is put to bed and kept there for five days, then allowed to sit up. Room *moderately* darkened.

The causes of failure have been irido-cyclitis, and sloughing of the cornea. As a safeguard against irido-cyclitis, Acon., Rhus tox., and cold applications have done me best service. When the cornea commences to slough, I have never found anything that would save the eye.

In not more than 10 per cent. of my cases have I found discission necessary.

H. C. FRENCH, M.D., SAN FRANCISCO, CAL.

In California the best time for cataract operations is spring or early summer, after the winter rains, and before the drought of summer has filled the air with infinitesimal dust and other impurities.

Have had the best results in farmers of temperate habits. Sedentary living and the excesses of metropolitan life have not been favorable to my efforts. Good hygienic surroundings are of prime importance in all cases.

Have operated on slightly unripe and artificially ripened cataracts with good success, but consider over-ripe lenses by far the most unpromising.

Have had little experience in operating without iridectomy, preferring to await confirmation of the sanguine claims of its advocates; though I have faith that it is *the* operation of the future. Have no reason to depart from my usual habit of preliminary iridectomy.

I have come to regard thorough asepsis as indispensable to success, and prefer saturated solution of boric acid, or merc. bichlor. 1 to 6000, in fine spray, before, during, and after the operation.

For anæsthesia cocaine generally fills the bill, but if a general anæsthetic is desired, I use chloroform in the following way: The patient is told to inhale and exhale alternately, both rapidly and forcibly, for several minutes, when, having anointed the face and nose with vaseline to prevent excoriating from contact, a thin handkerchief is spread over the face, when the chloroform is dropped, one drop at a time, directly over the nasal opening. By this method we seldom need more than a drachm of the anæsthetic to produce profound insensibility. I prefer this mode of administration of chloroform because we can thus avoid the annoying, and often dangerous, nausea that follows so often the use of ether.

I have found daylight good enough for my operations thus far, and prefer the peripheral linear operation of Von Graefe, with preliminary iridectomy, because I have seen the best results from this method in my own practice and the practice of others. I regard it as the safest, and as giving the best results, with the exception of extraction without iridectomy, which is doubtless the most brilliant and satisfactory operation when unattended by accidents.

If a reliable assistant can be obtained I prefer to dispense with the speculum, especially under the use of cocaine, as it produces pain and irritation which can be avoided by an adept assistant.

Have always used the fixation forceps, because I have found no other adequate means of steadying the globe for the incision.

I use a cystotome with a fine and not too long beak, and aim to cut a quadrangular section from the center of the anterior capsule. The lip of the wound then being depressed by a hard rubber scoop, pressure is made with the tip of the index finger upon the border of the lens most remote from the wound, the lens being thus tilted forward and pressed out by gentle and persistent force.

In probably 25 per cent. of my cases some vitreous has been lost, but I do not regard any small escape as affecting

adversely the result, and even the escape of larger quantities has sometimes been followed by good results.

I take plenty of time to remove cortical substance, allowing the anterior chamber to fill again and again if necessary to this end. I believe it would be better to leave a small amount of cortex than to use much force in the effort at removal. Having cleared the anterior chamber, I next satisfy myself that the lips of the wound are in perfect coaptation, and that no part of the iris is involved in the wound.

Following the teaching of my honored instructor, Dr. Liebold, I use no bandage, but, having cleansed the lids with calendula water, ten drops to the ounce, I apply a single thickness of linen cloth smeared with carbolized vaseline, over which sometimes a small pledget of absorbent cotton is held in place by adhesive straps, and sometimes nothing is placed between the eye and a light, clean mask. My objections to the old plan of bandaging are: (*a.*) The extreme difficulty in adjusting a bandage so as not to make uneven pressure, thus interfering with the perfect coaptation of the edges of the wound; (*b.*) The unnecessary heat and discomfort occasioned; and the confinement of irritating secretions by this method. I usually put my patient to bed for the first twenty-four hours, in a moderately lighted and well-ventilated room, allowing reasonable liberty of motion, but prohibiting any muscular exertion. I have in some cases allowed the patient to go about from the first with no bad results.

Among the commonest causes of failure in my observation, would name: (*a.*) Congenital blood dyscrasia, bad condition of patient from intemperate or irrational living; any but faultless hygienic surroundings at the time of operating; (*b.*) Over-ripe lens; (*c.*) *Too small an incision*—the last the most common cause of trouble.

For any form of inflammatory sequel to cataract operations I have found Rhus tox. θ to 2d my most reliable agent, and have learned to lean upon it with the utmost confidence, using locally at the same time hot or cold com-

presses of calendula, according to the condition of the patient.

I have probably performed secondary operations in 50 per cent. of my cases.

SAYER HASBROUCK, M.D., PROVIDENCE, R. I.

The cooler months of the year, to me, seem the most favorable for operation, as the patient will endure the confinement more cheerfully, and I always feel that we have during that time better control of septic conditions.

Age in my mind has very little to do with it, provided *all other conditions* are favorable. I have operated successfully at 89. Habits often must be controlled, but at this moment I don't remember that I ever refused to operate on that account. General and local conditions should be investigated and carefully corrected.

I much prefer to operate upon a cataract as nearly ripe as possible, though I can't remember a complete failure after operation on an unripe cataract; still I think I have more often noticed inflammatory irritation that complicated the result, even though I was careful to clear the anterior chamber of all lens substance. I have only in a very few cases tried Förster's method of artificially ripening a cataract where both eyes were progressing about alike and slowly; time being an important question from various reasons with the patient. Those, I think, did satisfactorily, and I should not hesitate to recommend it again. In cases of over-ripe cataract I am always fearful of loss of vitreous from rupture of the posterior capsule, with its attending complications.

My preference is for preliminary iridectomy, and I believe some of my most satisfactory results have followed that method, though the majority of my operations are with an iridectomy at the time of extraction. As yet I have not performed the operation without an iridectomy.

I believe most sincerely in perfect cleanliness with some one of the known antiseptic drugs. The one generally used by myself being acid boracic, grs. x. ad ʒj; just before the operation flooding the inner surface of the lids

so as to wash away any secretions that may be there. Frequently I have the patient use the same solution for a few days previous to the operation as well.

For anæsthesia I use at present cocaine hydrochlorate 4 per cent. The vomiting following the use of ether is a most decided objection in my mind.

I prefer daylight if possible, though I have worked satisfactorily by gas-light. I generally perform Graefe's modified linear extraction with iridectomy, but have no objections to any other method that gives satisfactory results, though I recognize that one man from practice might report excellent results where I should fail by lack of experience.

I use a speculum, and much prefer it to any method calling for an assistant, as I believe the operation should as much as possible be under the control of one mind.

I steady the ball with fixation forceps, as it has always given me perfect satisfaction.

I rupture capsule with a cystotome, making as large an opening as possible. At times I have used Förster's capsule forceps, though I have often felt that I had to use a dangerous amount of pressure, and have of late abandoned it. After rupture of the capsule I remove speculum and deliver the lens by gentle *continuous pressure upwards* through the lower lid.

I cannot state the percentage of cases in which vitreous is lost, though it is rare. I much prefer to complete the operation without its loss, though I can't say that it has interfered materially with my results. One case this winter in which I lost a large amount—so much that I was afraid and told my assistant that it would prove a complete failure—has turned out with a vision of $\frac{5}{7}$, and as far as I can judge a perfectly satisfactory eye. It has always been a question in my mind whether such eyes would not eventually soften and the vision deteriorate.

I never like to leave a case with any cortical substance in the anterior chamber, and try to remove it with gentle manipulation if possible, and at times I have washed out the anterior chamber with a small syringe. I always try to re-

move everything from between the lips of the wound and place the two edges in apposition.

I use small pads of absorbent cotton over each lid, held in position by adhesive straps passing over it and attached to each temple. This allows a perfect freedom of the head without disturbance of the bandage, and it can be easily removed and replaced without disturbance of the position of the head; it has given me most excellent satisfaction. My custom is to have my patient remain in bed for the first few days, and after the first day in ordinary cases I do not restrict their movements. I try to regulate the light about the same as would be pleasant for a person at any time in the same room; cutting off too bright light, but do not allow the room at any time to be darkened, and find my patients becomes more easily accustomed to the light on removal of the bandage, and that the conjunctiva clears more quickly from any little irritation that may be remaining. No local applications.

I can't say that any one cause has especially interfered with my results. I have had accidents during the operation and serious inflammations after; these I control by the various methods usually in vogue for similar cases. In private practice I have much less trouble with the after-treatment than I used to see in hospital work. The most unfortunate cases that I have had, have been where the patients have injured themselves after everything had gone right for three or four days; this has occurred twice that I now recall with complete loss of sight.

For treatment I try whatever the conditions of the case seem to call for. Atropine, warm applications, leeches, iodoform, etc., with the indicated homœopathic remedy dependent upon the symptoms and stage of the disease.

Make discission in a very large percentage of cases; cannot state definitely.

HORACE F. IVINS, PHILADELPHIA, PA.

I have seen no difference in results with or without antiseptics where thorough cleanliness was observed, but always use the bichloride of mercury now.

Do not use a general anæsthetic. Since the introduction of cocaine I have used a 4 per cent. solution of that drug.

I use only daylight for operation, and prefer the Von Graefe modified incision.

I use the speculum for the incision and capsulotomy, and fingers for the delivery of the lens. The latter because the speculum often acts as an obstacle to free manipulation, and if there be much spasmodic closure of the lids, there is more danger of the loss of vitreous.

I steady ball during incision with narrow fixation forceps; the control of the movements of the eye is more complete.

I rupture capsule by means of a central laceration with a cystotome. After rubbing over the closed lids gently with the finger they are separated, and a finger or the curette is placed above the line of incision; only slight pressure is made; alternate pressure is exerted below by means of curette or thumb. In my opinion this is the best way of starting the lens from its normal position. The presence of the speculum is often embarrassing to the delivery of the lens.

Vitreous is lost in about one-third of my cases; such loss does not seem to affect the result so far as individual observation is concerned.

All cortical substance should be removed that can be extracted with moderate effort and with a feeling of safety. The wound is to be scrupulously cleansed and the edges coapted before the closure of the lids,

As a bandage I use about two or three turns of a soft flannel. It is not very heating and is very soft and pliable. There is no objection to the single head band, tied in the back. Patient is put to bed at once. Action limited to slight motion for the purposes of giving a little relief to the body, but only by a very slow movement for two days, then the patient may sit up in bed, with a rest, if all is doing well. The following day may get out of bed, assisted by a strong nurse. Moderately light room. No local application immediately after the operation, unless there has been

unusual manipulation necessary in the delivery or removal of the lens. In that event atropine is instilled.

Secondary discission is made in about 33 per cent. of the cases.

E. H. LINNELL, M.D., NORWICH, CONN.

I prefer to avoid operating in very warm weather, because I think the wound is less likely to heal by first intention, and because the patient is naturally more restless; and so I am more apprehensive of accidents and complications.

I operate at any age, provided the patient is in fair general condition. I endeavor to cure any pre-existing blennorrhœa, or other morbid condition, before operating, and to secure good hygienic conditions as regards cleanliness, pure air, ventilation, etc.

I have never operated upon unripe or artificially ripened cataracts.

I have never operated without iridectomy. My success with preliminary iridectomy and with iridectomy done at time of extraction has been about equal, although I prefer to make a preliminary iridectomy when the patient will consent to two operations, as I think there is less danger of iritis and of adhesions of iris to corneal wound; the less the disturbance of the eye at the time of extraction, the less is the danger of complications.

I fully believe in the value of antiseptic measures. I have used both boracic acid and bichloride solutions, but prefer the latter. I wash out the conjunctival sac before the operation and afterwards, using a 1 to 5000 solution. Several hours before operation I wash all instruments with simple water, inspecting the teeth of the forceps with a magnifying lens to be sure of perfect cleanliness, and then dip them into alcohol; immediately before the operation I wash them again in Labarraque's solution, two tablespoonfuls to a pint of boiling water.

I use ether in sensitive, nervous individuals. In those less nervous I use cocaine, 4 per cent. solution. A hypodermic of morphine gr. $\frac{1}{8}$ and atropine gr. $\frac{1}{100}$, adminis-

tered half an hour before giving ether, lessens the danger of vomiting.

I always operate by daylight. After trying other methods, and after a careful study of published experience of others, I have adopted De Wecker's operation as the most desirable. I make a low corneal flap, involving about 4 mm. of the cornea, making the incision with a triangular knife exactly in the corneal margin. My reasons for preferring this method are as follows: The position of the incision renders the danger of cyclitis and loss of vitreous less, and also of protrusion and incarceration of the iris, and there is less bleeding than when the incision is made more peripherally, because it does not involve the conjunctiva. Moreover, the incision readily gapes, facilitating the expulsion of the lens. It has been objected that this incision is undesirable, because the iris cannot be removed entirely to the periphery, and thus there is more danger of adhesions in the iritic angle; and, secondly, that remnants of cortical matter are less easily removed. In answer to the first objection, I would say that I do not consider it essential to remove the iris entirely to the periphery in making the iridectomy, and the danger of adhesions is largely avoided by the use of eserine. I do not consider the second objection a weighty one at the hands of a skillful operator. My objections to other methods are sufficiently given in the reasons I have assigned for giving the preference to the low flap operation.

I use a speculum while making the incision and the iridectomy, because I consider it more reliable than the fingers of an assistant, and a suitable speculum is less liable to produce injurious pressure than the retractors. I remove it after the iridectomy is completed.

I use a fixation forceps to steady the eye, holding it myself while making the corneal incision, and handing it to an assistant to hold during the iridectomy, and I prefer a forceps with a catch, because it is less likely to slip in transferring it to my assistant. I think this practice is safer than steadying the eyeball with the fingers.

I make a T shaped incision in capsule with a cystotome, and expel the lens by gentle pressure upon the lower part of the cornea through the lower lid in a backward and upward direction, at the same time causing the wound to gape by pressure upon the upper lip with a rubber curette. I have no special objections to other methods, but this is the one I have come to prefer.

I do not lose vitreous frequently, but I recall one case in which a large amount was lost, but the patient made a good recovery. I do not think the loss of vitreous without any other complication seriously affects the result of the operation.

I regard it of the utmost importance to remove as far as possible every particle of cortical substance, blood clots, etc., but in so doing I avoid the introduction of instruments, relying as much as possible upon gentle rubbing of the cornea with the closed lid, and causing the wound to gape by the use of the spatula or curette. I use the greatest caution to cleanse the lips of the incision from particles of lens matter, iris, etc., in order to obtain perfect coaptation and ensure early and perfect closure of the wound.

I do not any longer use a bandage in cataract cases. Immediately after the completion of the operation I flush the conjunctival cul-de-sac with the bichloride solution, and then instill a drop of a 1 per cent. solution of eserine. I then close both eyes with a strip of thin isinglass plaster, over which I lay a pad of antiseptic absorbent cotton, and over this a black silk mask fastened by strips of tape pinned to a night-cap. I put my patient to bed, forbid all unnecessary conversation and movement, and give him liquid nourishment only, through a drinking tube. I soften the light, but do not exclude it altogether. On the day following the operation I instill eserine again at the edge of the plaster without opening the lids, and on the third day I use atropine in the same way to avoid posterior synechiæ if possible. I object to the bandage because it is liable to get out of place and produce injurious pressure, and because it is uncomfortable to the patient, especially in warm weather. The eye

can be inspected much more readily and easily by the use of the mask, and with less disturbance of the patient.

I have used with much satisfaction a warm solution of calendula, 1 to 8, applied to cornea with a camel's-hair brush, in the only case of suppuration I have had. I consider Rhus tox. one of the most efficient remedies in combating inflammatory complications following extraction.

F. PARK LEWIS, M.D., BUFFALO, N. Y.

I operate at all times except during the extreme heat of summer. Objections to this time, the discomforts of confinement for the patient, and possible ill after-effects in consequence of the atonic condition of the system.

Age unimportant. The alcoholic habit makes the prognosis less favorable, as also will any intemperate habits of living. Look for better results when the patient is physically well. Correct any dacryo-cystitis or catarrhal inflammation of the conjunctiva invariably before operating.

I never operate on an unripe cataract unless it is imperative. Prefer, of course, a normally ripened cataract, but if necessary use Förster's method. In over-ripe cataracts prefer extraction in the capsule.

I prefer preliminary iridectomy, but usually, for convenience of patients, make iridectomy at the time of the operation.

Believe that antiseptic measures are valuable. Use a 1 to 1000 bichloride solution for washing eyebrows, lids, and lashes thoroughly before operating; then wash out the conjunctival sac with a 1 to 10,000 solution. Keep instruments, except knives, in carbolized solution. Dip knives in fresh castor oil to give smoothness to edge.

Cocaine is used because of its simplicity and good results as a local anæsthetic. Ether is apt to be followed by troublesome vomiting. Chloroform is sometimes dangerous.

Operate by daylight. Operation—modified Graefe, puncture and counter-puncture in sclera, section in cornea or at limbus. Have had best results from this operation.

Use speculum. Cannot always depend upon an assistant. Control the ball with fixation forceps—clean and governable.

Usually make Knapp's peripheric section of capsule. This is not always easy, and am sometimes obliged to make vertical division. Deliver lens by depressing upper section and gently coaxing lens upward by spoon on cornea.

Lose vitreous in a very small proportion of cases. A slight loss of vitreous does not seriously affect the result.

Use great care to get out all the cortical substance possible. Do not believe it wise to wash out fragments. See that no remnants of iris lie between edges of wound; use spatula for that purpose; also see that the wound is free from conjunctival tissue—in other words leave it clean—then drop in conjunctival sac 1 to 10,000 solution of bichloride. Do not use atropine unless there has been oozing and iritis is feared.

Bandage of new, fine flannel is applied over both eyes. A small piece of cotton cloth, slightly spread with vaseline, is first placed over the closed lids, then a pad of absorbent cotton, and over this the bandage. This is kept on for from twenty-four to forty-eight hours, and then a Liebreich bandage, or folded handkerchief, is kept on over a similar dressing for a week or ten days. Keep the patient in bed for twenty-four hours, afterward allow him to sit up, but not to move around the room much for a week or more. Have used adhesive plasters, but believe that the bandage gives a greater sense of comfort and security to the patient. Prefer a moderately lighted room, darkened when eyes are examined. As a local application after operation, generally use bichloride. If tissues are bruised, atropine; if hæmorrhage, eserine.

Failures usually due to intra-ocular inflammations are treated as below.

For all inflammatory after-effects find as a general rule hot applications useful. Most frequently use internally Aconite or Belladonna. Rhus has not proven as useful as I had hoped. For sloughing of wound, often use eserine

or bichloride ; but they must not be used at the same time. They do not work well together. Fortunately, I rarely have panophthalmitis. It is always obstinate, and treatment seems to have very little effect.

Find secondary discission necessary quite frequently.

G. C. McDERMOTT, M.D., CINCINNATI, OHIO.

The best time for operating on senile cataract is in April, May, and June ; or in the Fall months of September, October, and November. Although, according to my experience, these are the best, many successful operations have been performed in every other month. The reasons for my preference are, that the extreme heat and cold of the mid-summer and mid-winter months are unfavorable to the healing of wounds in systems enfeebled by age.

The degree of the vitality of the patient *makes* his age so far as the physician regards it : some patients are older at fifty than others at eighty. Personal habits are bound to have more or less influence ; for instance, a man addicted to the liquor habit has of course, vitiated blood, and more or less tendency to inflammation to combat even before the operation.

Success in operating on unripe cataract is a possibility, and is often attended with results gratifying to the patient ; but every surgeon protests against undertaking such a case unless the patient's condition really demands it. It is under similar conditions that artificially ripened cataracts are operated upon : the danger of inflammation resulting from the use of the needle makes the chances of success less, and a wise surgeon will, if possible, let the cataract ripen naturally. The operation on ripe cataract is one of the most successful and pleasant cases the oculist can have. As to over-ripe cataracts, they are preferable for operation to either of the first two cases mentioned, but the danger in these is from degenerative changes.

To operate for a cataract without iridectomy is the climax of surgical skill in this line of work. But this requires a finished dexterity and delicate manipulation which can

result only from constant practice ; this constant practice cannot be had by the average surgeon, who probably has only a limited number of these special cases each year. To give the patient the best chance, iridectomy is performed usually, even though it is not so brilliant a triumph for the operator. If iridectomy is to be performed, by all means have it preliminary if possible ; a month, six months, even a year sometimes, previous to the operation for cataract, in order to spare the patient the danger of subsequent inflammation at the time of the second operation. Of course, in the case of a patient limited in time or means, iridectomy can be, and often is, performed with success during the cataract extraction ; but it is the least desirable of these possibilities, and is the one most apt to affect the patient unfavorably.

Every surgeon of to-day highly values and uses antiseptic measures, and in no branch of surgery is their use more beneficial than in cataract extraction. The instruments should be cleansed with carbolized water ; the skin of the eyelids, eyelashes, and eyebrows should be thoroughly cleansed, in fact scrubbed, with, first, soap and water, then with carbolized water.

Anæsthesia in ophthalmic surgery has been revolutionized since the introduction of cocaine. We now obtain complete local anæsthesia by the local instillation of cocaine, instead of the former inhalations of either chloroform or ether ; here happily we avoid vomiting and its consequent dangers after the operation by the use of cocaine. It is now the exception to produce anæsthesia by the use of chloroform or ether.

The light of midday is to be preferred to either the electric or any other artificial light.

The form of operation preferred is a slight modification of the modified linear extraction of Von Graefe ; it is desirable because a loss of vitreous humor is not so likely to occur, the incision being wholly in the corneal tissue.

It is my custom to control the lids by the speculum, and only where the eyeball has greatly receded into the eye

cavity, do I use the lid retractor. There is greater security in the speculum or lid retractor than in the fingers of any assistant.

To steady the eyeball, I have always relied upon the fixation forceps when making the incision, because they hold the eyeball more firmly and assist in making the puncture and counter-puncture.

In rupturing the capsule, I always use the cystotome, and prefer to perform the T incision. In delivering the lens, I press upon the sclerotic slightly back of the corneal incision with a light rubber curette, pressing backward toward the center of the eyeball; this produces a gaping and facilitates the easy exit of the cataract. I never make a counter-pressure on the lower part of the cornea except where the lens is slow to escape. By this peculiar manipulation we have less chance of loss of vitreous. Since I have adopted the process described above, the proportion of cases in which the vitreous is lost is reduced to a minimum: when there has been loss of vitreous, up to one-third of the whole amount, there has been no perceptible decrease in the number of successful cases.

If it is possible, remove every particle of cortical substance; but, on the other hand, it is sometimes better to leave a few particles and trust to their absorption by natural processes, rather than endanger the eye by too frequent attempts at removal during which the vitreous, if fluid, may be escaping.

Before applying the bandage, or closing the lids, see that the edges of the wound are perfectly coapted, and that no foreign substances, *i.e.*, beads of vitreous, particles of lens capsule, or blood clot, or portions of iris, are in the wound.

The bandaging of the present time is of the simplest character, consisting only of a light piece of muslin, gently holding the lids together; in many instances in which there are no complications, a slight adhesive plaster, securing the lids together, is all that is used; it is only in those cases in which there has been loss of vitreous, that a compress band-

age is applied, or the patient confined to bed after the first twenty-four hours following the operation. The patient may use a rocking-chair after the first twenty-four hours; in the cases of very old people no restrictions are imposed as to liberty of motion, even immediately after the operation. It is not necessary to darken the room, nor to use any local application at once.

Irido-capsulitis is one of the commonest causes of failure. Many such cases have a useful degree of sight restored by operation for secondary cataract.

When, within twenty-four to forty-eight hours, symptoms of severe inflammation appear, for instance, œdema of the eyelids, profuse lachrymation, marked conjunctival congestion; ice-cold compresses may be used for a period varying from twelve to twenty-four hours; this treatment has proved successful. *Rhus tox.*, given internally, wonderfully allays inflammation that might otherwise prove serious.

Of late years, it has been my practice to resort to secondary discission whenever, without good and apparent cause, the vision of the patient does not come up to the standard of $\frac{2}{20}$ to $\frac{2}{40}$ by the aid of glasses; and this embraces not a small percentage of the cases treated.

(*Note.*—The conclusion of this article, with a critical résumé of the subject by Dr. Deady, will appear in the next number of this journal.—ED.)

TREATMENT OF HEREDITARY MYOPIA.

BY M. DUCLAUR AND M. BOUCHERON.

Translated by S. LILIENTHAL, M.D., from *Bulletin Médical*, 56, '89.

The infants of myopes are not born myopes; they become so, earlier and earlier, according as the generations follow one another; *e. g.*, grandfather becomes myopic in his twentieth year and keeps a light myopia of one or two dioptrics, which is not without advantages. The father becomes myopic at fifteen and reaches only three or four dioptrics of myopia, and in his senility he can even read without spectacles. The son is a myope at twelve, reaches five or six dioptrics, and wears glasses permanently. The grandson is already a myope at eight, reaches six dioptrics at fifteen, seven at twenty-eight or thirty, loses one eye at thirty-five, and has to take good care of the other eye all the remainder of his life.

There are no doubt variations. Sometimes myopia marches quickly, at other times slowly, especially when one of the parents is not myopic, where the mode of life is changed, or when the mode of education is changed. We meet this hereditary myopia most frequently in the middle classes of society, where the eyes are more in constant use, so that myopia nowadays becomes a serious complaint of civilization; and to remove this stain treatment must begin early, before the globe of the eye becomes too long. The elongation of the eye and its increase in volume are the characteristics of confirmed myopia.

Which is the moment in infancy or adolescence and what the exact mechanism which transforms a hereditary tendency to myopia into a positive myopia, and how can it be obviated by treatment? We think it is an ocular accommodative cramp, the analogue of the writer's cramp (functional cramp), so well known by its duration

and obstinacy to treatment. Let us see : A child who learns to write, bends down about 15 centim., twists his neck, puts out his tongue, and makes grimaces with the face as sure signs of attention ; he clutches convulsively the pen, distorts his body, with his feet firmly put down. In one word, a general muscular contraction takes place, including the muscles of the eye. Often a cramp of the muscles of accommodation of the eyes results therefrom, which may become permanent in a young myope. Its demonstration is easy. Take a hundred myopic children in school, measure their myopia, and then drop atropine in their eyes ; and we find that the farthest point of reading, close by, is extended, in proportion of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, or only $\frac{1}{8}$, without modifying the myopia otherwise.

This cramp of the muscles of accommodation is not complete, it does not absolutely immobilize vision on a fixed point, but it never fully relaxes,—it lasts a long time or reproduces itself easily, and hardly ever allows reading at a maximum distance. As soon as the child writes or reads, it tends to aggravate this accommodative cramp, just as the scrivener produces his manual cramp as soon as he takes hold of the pen. But the more the ocular cramp increases, the closer is the eye put upon the object, and myopia increases. In fact, this nearly constant cramp of the ciliary muscle solicits a hypersecretion of the cells secreting the humors of the eye, these secreting cells being nourished by the same vessels as the muscles. This excess of fluid, though evacuated by the usual channels, produces a dilatation of the entire globe, and particularly at the point where there is a natural weakness in the envelopes of the eye, near the optic nerve—the point liable at a later period to posterior staphyloma. Definitive myopia is established.

One understands easily the danger of precocious myopia, as in the young child the envelopes of the eye are softer and thus more easily distended by the excess of the ocular fluids, and myopia grows rapidly. In the adult, progressive myopia becomes complicated not only by the accommodative cramp, but also by certain diseases, as rheumatism and gout, etc., which increase the tension and cause lesions of the vessels and membranes, at the macula and around the optic nerve.

Cocainization and atropinization are necessary to combat myopia in the young, who are then obliged to read at *punctum remotum*,

and as they then find it impossible to read close at hand, they correct their attitude, and do not bow down on their paper or book. Spectacles ought not to be recommended for young myopes ; our duty is to prevent its growth. The child must read and write at a distance. Hygiene and prophylaxis is our treatment ; the child should do its work at a distance, whether it is large or small print ; he ought to write with goose-quills and heavy points, and always by a good light, for in a dim light he draws the book up to his eyes, and that increases the myopia. But dark and rainy days will happen ; the child must learn his lesson, though he bends down his eyes and his body to accomplish the task, and other means will aid us. For a young myope who can only read at 30m. or 40m., the instillation of atropine or cocaine is necessary to fix vision at the maximum of distance. In only slightly myopic children, of one or two dioptrics, the atropine prevents the possibility of reading close by, and it should be employed during vacation, while cocaine can be utilized during the time of work. The dilatation of the pupils causes a real glare, perhaps a little less in children than in adults, which can be corrected by colored glasses. Astigmatism, often in connection with myopia, may be corrected by glasses which allow, after atropinization, reading at a desired distance. Concave glasses for vision at a distance, in young people already very myopic, can be worn at the same time with the atropine cure. We think very favorably of muscular exercises in a vast horizon ; for many muscular exercises withdraw the muscles from their habitual cramp.

Hereditary gout and rheumatism are not the only important causes of aggravation in myopia, but they determine complications, and the necessary rules of diet and of hygiene cannot be too strictly enforced. Let myopic parents guard their offspring, so that the first traces of the trouble in vision will be noticed and remedied. Much can be done at that stage of the disease, and confirmed myopia prevented.

BOOK REVIEWS.

THERAPEUTIC METHODS; AN OUTLINE OF PRINCIPLES OBSERVED IN THE ART OF HEALING. By JABEZ P. DAKE, M.D. College Edition. Boston and Providence: Otis Clapp & Son. 1889.

This second edition of "Therapeutic Methods," by Dr. Dake, is simply a reprint of the first edition, which has been before the profession about three years, and has received most favorable reviews by all the leading homœopathic journals. It is now so well known that it does not need reviewing in detail at this day. Although we may not indorse all statements made by the author, yet we most heartily recommend the book to the perusal of all who desire to become familiar with the therapeutic methods of the art of healing. Praise, only, is due the publishers for their share of the work. N.

HEADACHE AND ITS MATERIA MEDICA. BY B. F. UNDERWOOD, M.D. New York: A. L. Chatterton & Co. 1889.

This small handbook considers, first, the different forms of headache and their distinctive symptoms; following which are the remedies with their indications. The latter portion is devoted to a Repertory. The above arrangement renders the book convenient for reference by the general practitioner. N.

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